Textile World

ESTABLISHED 1868

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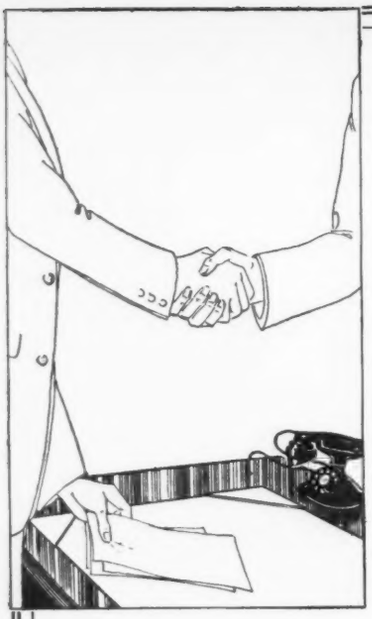

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Textile World

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Editor: DOUGLAS G. WOOLF

You May—in Fact, You Must

IT seemed to us that the wording of the machinery registration clause in the cotton textile code—which incidentally was duplicated in several other textile codes—was sufficiently plain. Its intent, as we understood it, was: (1) to prevent unwarranted expansion of plant facilities; but (2) to place absolutely no obstacle in the way of purchase of equipment for replacement purposes, or to bring plants into balance.

Nevertheless, this section has been misinterpreted more frequently and more thoroughly than any other part of the code. It has been described as an absolute bar against purchase of machinery. It has been construed as meaning that a textile manufacturer would have to ask President Roosevelt for permission to buy a loom.

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We hope that the resolution recently presented to the Cotton Textile Industry Committee by B. B. Gossett, chairman of the Plant Extension Sub-Committee, and adopted by the general committee, will remove all doubts. Briefly, this resolution recommended to the NRA that:

1. Manufacturers shall register with the Cotton-Textile Institute an inventory of their productive machinery in place on Oct. 1, or then under contract but not installed.

2. Manufacturers, commencing Nov. 1, shall file monthly reports with the Institute showing installation of additional productive machinery (new or second-hand) and specifying the extent to which such installation is for replacement of similar number of units, or to bring operation of existing machinery into balance.

3. Commencing Oct. 1 prior to installation of additional productive machinery not theretofore contracted for, except for replacement or balancing, manufacturers shall file application with the Institute, stating reasons for such installation—and to secure from NRA, through the industry committee, a statement that such installation will be consistent with effectuating the policy of the act.

4. The industry committee shall examine the application and the facts, and make its recommendation to NRA as to granting or withholding the certificate.

What could be plainer?

▼

This disposes of the negative side of the modernization problem: Manufacturers are not restricted in their right to purchase machinery for replacement purposes.

There is also a positive side: Manufacturers will find that they *must* purchase machinery for replacement purposes.

The industry's equipment has deteriorated seriously during the last few years—as figures of machinery sales strikingly reveal.

The significance of this point to the individual manufacturer rests in the fact that, with wage chiseling restrained, he now has a chance once more to secure a premium on efficient management, efficient methods, and efficient plant. In fact, those factors again become the major potential sources of profit. Mill managers and their department heads once more come into their own. The application of intelligence to the purchase of equipment, accessories, materials, and supplies of all kinds; to the improvement of both manufacturing and finishing processes; and to the development of a smoothly-running organization, will again yield returns.

The Editor Says:

ORGANIZED labor has been playing an increasingly discreditable rôle in connection with the NRA program. No one will dispute the right of the A. F. of L. to attempt to increase its membership but thinking men will denounce the utilization of the recovery movement as a primary means toward that end. That movement was conceived for the purpose of alleviating the misery of unemployment on which William Green can discourse so eloquently in public. And yet, from the remarks of Mr. Green himself, it is impossible to escape the conclusion that his organization has placed that purpose secondary to the goal of securing union members. It was inevitable that such a psychology should have developed the bitterness and antagonism which today are menacing the success of the whole program. Anyone who knows—as Mr. Green must know—that attempts toward unionization beget strife in so many industries, should also have recognized that the national interest demanded a postponement of that warfare at least until suffering was relieved. . . . It would be foolish to claim that 100% of industry has been devoting itself unselfishly to the prosecution of the NRA program. Nevertheless, from our own contacts we are convinced that the great majority of industrialists have been sacrificing what for years they have regarded as their rights, in the hope and belief that they were contributing to national recovery. If this had not been true, Mr. Green would not have been able to state publicity that over 3,000,000 persons had gone back to work between March and September. Such an attitude on the part of industry deserved a response from organized labor, far different from that which the A. F. of L. has given. . . . Those who fear that the result of all this will be the complete unionization of American industry, are concerning themselves unduly. The A. F. of L., it is true, has gained many additional members—and will undoubtedly add many more in the near future. However, it is gradually discrediting itself with even those branches of industry which in the past have been sympathetic toward organized labor. More important still, it is preparing the way for ultimate repudiation of its methods by the rank and file of wage-earners who have a right to expect of their leaders, not a selfish exploitation of the emergency, but a cooperative effort toward the termination of that emergency. The disillusionment which will come to the workers, as they see the chances for employment this winter endangered by the tactics of their own so-called representatives, will be more effective than could any counter-attacks on the part of employers, in building up a demand for real and constructive representation. . . . It is not a pretty picture. It is one which we wish most earnestly might have been avoided. But it may serve to hasten the appreciation, on the part of the A. F. of L., of the principle which we have emphasized repeatedly in these columns: namely, that it can never hope to represent American labor until it substitutes for its membership mania, a conscientious desire to advance the real interests of those whom it would represent.

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THERE was an air of uncertainty in business during September. It was reflected in industry, in trade, and in the commodity and security markets. Those who had expected too much of the recovery program had encountered the inevitable disappointment. Those who "never had much faith in the whole business anyway" came out of hiding and practiced up on the "I told you so" theme. The inflationists revived their threats, or promises—depending upon one's point of view. New problems presented themselves—such as the need for stimulation of the capital goods industries if real recovery were to be effected. . . . All of this would be discouraging if it were not for one fact: Faith in ultimate victory has not been destroyed. The great mass of the people are still confident that they will come through. What they have lost—and fortunately so—is over-confidence. They realize anew that the emergency has been unprecedented in degree, and that it cannot be passed in a few months. It was that thought we had in mind when we stated in August: "It must not be forgotten for a single moment that the emergency still exists and that much progress is still to be made if even limited relief is to be afforded millions of sufferers before next winter sets in." It is even more necessary, today, to keep green this memory.

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PASSING through mill towns in Rhode Island a few weeks ago, we saw hundreds of textile employees going home from work at 3.30 in the afternoon. Through the grace of daylight saving time, it was 2.30 by the sun. Several hours of recreation and relaxation stretched ahead of them. . . . We were reminded of our own mill experiences some 20 years ago when we rarely left home in the morning, or reached home in the evening, by daylight. We recalled one job which necessitated a 5.21 train from our town in the "morning" and an 8.30 dinner at home at night. . . . Who can deny that this is progress? Of course, there are some who worry about what these "poor people" are going to do with their leisure time. We can't seem to get steamed up over this. We have never believed that ability to utilize leisure is granted to a few select classes only. More important still, we are confident that a man or woman who has the opportunity for several hours out of doors a day, will put up a stiffer resistance to the devil and all his works than a man or women who reaches home after dark, mentally and physically benumbed. . . . We almost forgot the argument that, because we or our fathers or our grandfathers worked 12 hours or more a day, our children should be content to do likewise. We're afraid we'll have to pass that one up.

A Few More *Statistics —and a Moral*

PROVIDENCE, R. I.

Editor, TEXTILE WORLD:

A perusal of your interesting editorial "A Few Statistics—and A Moral" in the September issue of the TEXTILE WORLD prompted me to compare your figures showing the activity of the textile industry during the past five years with the profit and loss statements resulting from this activity and for this purpose I have chosen 53 representative northern mills comprising about 7,600,000 cotton spindles (or 70% of the total cotton spindles in place in the New England States) and approximately 1,000,000 worsted and woolen spindles.

As of 1932 this group of plants represented slightly over $506,000,000 of total assets and slightly over $326,000,000 of capital invested in plant and equipment.

Our records are not quite complete for every plant for each year but taking such data as is available I find that for the year 1928 the net earnings (mostly after depreciation and all other charges) of 32 establishments in this group embracing slightly over 6 million spindles were only $3,303,945, or less than 1% on the total invested capital and only 1.36% on the capital invested in plant and equipment.

For 1929, which you refer to as the "banner" year as regards activity, the net earnings (mostly after all charges) of a group of 36 establishments embracing 5,620,000 spindles (which are the same ones as are included in 1928) were only $2,977,390 or again less than 1% on the total invested capital and only 1.32% on capital invested in plant and equipment, from which it would appear that great activity does not necessarily mean great profits.

For the year 1930, the net loss of a group of 44 establishments embracing some 7,260,000 spindles (including the same mills as above) was $20,534,979; in 1931 a group of 49 establishments embracing just under 8,000,000 spindles lost $26,632,158; and in 1932 a group of 39 establishments embracing 7,100,000 spindles lost $29,103,722.

Adding together the above profits and losses you will see that this group of 53 mills, during these five years, lost all together approximately $70,000,000, and as all of the plants included in this list are, generally speaking, well managed and efficiently operated, the basic cause for this deplorable result must be found in factors which, during the past five years at least, have been beyond human regulation.

A. N. SHELDON,
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Arthur Besse . . .

NEW HEAD OF THE WOOL MANUFACTURERS' GROUP

WHAT kind of a man is Arthur Besse, the new president of the National Association of Wool Manufacturers?

This question has been put to us many times during the last month—but usually by men identified with other branches of the textile industry than the wool division itself. Many wool goods manufacturers and selling agents have know him for years, and knew his father, the late founder of the Besse System, formerly one of the oldest and most successful retail clothing store chains in the country.

Relatively young—46 years of age—Mr. Besse brings to his new post a background of varied executive experience; a knowledge of the industry without the inhibiting influence of too close identification with it; a rather unusual combination of modesty and confidence; a charming personality—and a sense of humor.

Taking the last characteristic first—particularly since it may be needed the most—he displayed it to us when, during a discussion of his appointment, he remarked that he formerly had been a customer of the men whose group he now heads, and he imagined they liked their customers a little more than their competitors.

His modesty takes the form of entire freedom from arrogance of opinion. He has no dogma to offer to the industry. He does not look upon his job as that of either a czar or a policeman. All he hopes to do is to contribute what he can to the fulfillment of the industry's own job of creating more stable and profitable conditions for manufacturers, their workers, and—indirectly—the consuming public.

Coupled with this modesty, however—as indicated above—is a sense of assurance that the job can be done. "It's got to be done," he remarked. "If we make mistakes, we'll just have to start over again."

Mr. Besse's acquaintance with the fundamentals of the industry leads him to believe that the wool industry lacks neither willingness nor ability to cooperate. His knowledge of the field was demonstrated when he dwelt upon the urgent need for sound statistical information concerning the markets and the producing status; and upon the need for early adoption of fair practice provisions. Development of the former is proceeding rapidly, as reported in these columns last month. Progress on the latter is hampered, of course, by the interrelationship with so many other trade divisions, but the work is very much in the foreground of the association's activities.

The executive experience which Mr. Besse brings to the presidency has been of three types: commercial, military, and financial.

A graduate of Harvard University in 1909, he entered his father's business and for 13 years was identified with the retail end of the clothing field, acting successively as temporary manager of various stores to forward the development of the firm's policies. During his association with the Besse System, his father acquired and operated for two years a clothing manufacturing concern. About 35 or 40% of the product was sold to the Besse stores; Arthur Besse sold the balance outside, and at the same time purchased wool goods for the manufacturing company. In 1922, executive and buying offices for the chain were opened in New York, in his charge. It was in this capacity that he gained his widest contacts in the piece goods market.

During the war, Mr. Besse was a lieutenant-colonel in the Chemical Warfare Service, being second in command in the gas defense division. He regards as one of the most valuable parts of this government service the post-Armistice experience. His organization settled within approximately four months all but two of 800 contracts for purchase.

His financial experience was acquired from 1926 to 1931 when he was a member of the firm of Hale, Waters & Co., a New York investment banking firm, specializing in utilities.

The answer to the questions about Arthur Besse, as found in his background and personality, promises much, we believe, for the future of cooperative effort in wool manufacture.

NACM EXAMINES PAST, PRESENT AND FUTURE OF NRA

THE past, present and future of the NRA were exposed to public view at the annual convention of the National Association of Cotton Manufacturers in Boston Oct. 4. A textile man sketched the past, a representative of the Administration outlined present problems, and a college professor tried to peer into the future.

It was not, at all times, a pretty picture that was painted for the association. It was a realistic one. There was no attempt to gloss over the weaknesses in the new set-up—or to minimize the dangers inherent in this type of experiment. However, there was in each address a note of confidence in the final outcome. There was also, in the remarks of those speakers not connected with the industry, a note of profound respect for the courage and vision which enabled cotton manufacturers to secure Code No. 1.

The textile man who was induced to talk about the past was Frank I. Neild, president of the Neild Mfg. Corp. and a member of the Cotton Textile Industry Committee. Gossip coming out of Washington during the last few months has given Mr. Neild quite a reputation. He has been described as one who always knew how to relieve a tense situation—whether by starting to play the piano or by telling a story. The ease with which he told of the Battle of Washington at the N.A.C.M. convention indicated that this reputation must have been warranted.

But Mr. Neild did more than talk about the past. He touched on a present problem, the mention of which brought his hearers to the edges of their seats. The American Federation of Labor, he said, has attempted to use the act as a means toward the unionization of all industry. But, he continued, if other industries had completed their codes as quickly as did the cotton manufacturers, so much attention would not have been focussed upon the labor phase. Most industries have attempted to omit Section 7 of the act from their codes, or to modify it. They couldn't do it, because that was part of the law. But they did succeed in highlighting the whole problem, according to Mr. Neild, and in strengthening the hand of the A.F.of L.

"The code has not really started to work properly yet," he said in conclusion, "because it has not been completely rounded out. Attention must be given at once to the trade practice phase of the problem, for in that way only can the full benefit of the code be realized by the industry. There is need to round out the code with provisions relative to selling below cost, cancellation of contracts, deliveries on contracts, allowances, and other details in connection with the merchandising end of the business. That is the next great step and one we do not want to miss, for in that direction there is greater need for cooperative action than ever before."

How the NRA is working out the industrial relations features of the cotton code was described by Dr. Robert W. Bruere, chairman of the Cotton Textile National Industrial Relations Board. After sketching the origin of that board as an outgrowth of the stretch-out committee, Dr. Bruere gave illuminating facts regarding the type of complaints being received, and the method of handling them.

At first, complaints went to a number of different offices, but the board decided that they should all clear through it. The members of the board had been told that there were thousands of such grievances; when they were gathered together, the number was found to be something like 200. Not so bad, concluded the speaker, in an industry which was then (in July) employing over 400,000 workers. Furthermore it was found that the great bulk of the complaints came, as Dr. Bruere expressed it, from individuals who felt that anyone connected with the industry was guaranteed a minimum wage of $12 in the South and $13 in the North. Many came from sub-standard workers, who present a problem which he described as particularly serious and difficult.

Then, there is the problem of the learners. The majority of the manufacturers, Dr. Bruere said, are handling this properly—but in some cases, workers are put into a "squirrel cage"; they go successively into and out of a mill and every time they go back in, they are classed as learners. The board is looking into this matter very carefully.

Hood Reelected N.A.C.M. President

ERNEST N. HOOD, treasurer of the Pequot Mills, Salem, Mass., was reelected president of the National Association of Cotton Manufacturers at the annual meeting, held in Boston, Oct. 4. Weston Howland of the Warwick Mills was reelected senior vice-president, and Dexter Stevens of the Utica Cotton Mills was reelected junior vice-president. Directors chosen for three years were: Joel M. Barnes, Barnes Textile Service; C. F. Broughton, treasurer of Wamustta Mills; F. C. Dumaine, Jr., Amoskeag Mfg. Co.; David Duncan, Lonsdale Co.; Ralph C. Perkins, treasurer of the Queen City Cotton Co., the Pilgrim Mills and the Perkins-Strong Corp.

In accepting the office, Mr. Hood stressed the need for a large and active membership, a point also emphasized by W. S. Pepperell, in the treasurer's report. The greatly increased expenses of the association because of code activities made it necessary to step up the income, Mr. Pepperell stated.

The report of the secretary, Russell T. Fisher, reviewed some of the developments with respect to the NRA and the AAA and, in particular, stated that the conversion factor of 105% applied to imports as a floor tax did not adequately protect the American manufacturer, since the waste in manufacturing was far in excess of 5%.

Ernest N. Hood

The most important resolution passed at the afternoon session requested the NRA not to grant any exceptions to the limitation of machine hours in the code. This is dealt with fully elsewhere in this issue. Another resolution expressed the gratitude of the industry to President Roosevelt for his assistance in eliminating child labor and all-night operation and urged him to take such steps as would make this a permanent part of the laws governing the cotton-textile industry.

In his address at the banquet, Mr. Hood strongly urged group action to limit production to demand. Pointing out that it was impossible for all the mills to run 80 hours, he suggested that different groups, such as the wide sheeting group, secure information concerning demand and then schedule the hours of operation accordingly. He also mentioned the dangers inherent in the tariff situation.

Dr. W. Warren Giles mixed humor, economics and sentiment in the concluding address at the banquet.

One statement made by the speaker represented a challenge to the industry. Out of about 1,000 complaints received at the time he spoke, he knew personally of no single instance where, in advance of a strike, an employer has taken the initiative in utilizing the machinery set up in Article 17 of the cotton code. As a result, he said, the notion is growing among employees that the only way they can get attention is by striking.

Dr. Bruere concurred in what Mr. Neild had said about Section 7 of the act itself. It's increasingly the most difficult part of the law with which the NRA has to deal, he said. It is unfortunate that it was given so much prominence during the formulation of codes, since it is a part of the law and could not be altered anyway. The speaker admitted that the whole problem of industrial relations involved in the code was not easy, but that if it were approached in the spirit of sound management, intelligent judgment, and candor, it would be settled properly.

The final speaker at the session devoted to the NRA—Prof. Philip Cabot of Harvard University Graduate School of Business Administration—employed a rather novel psychology, possibly unintentionally. He started off by almost scaring his listeners to death, but finished up in quite a hopeful vein. During the first part of his talk, he appeared to be convinced that the cotton industry had indulged in folly, even though courageous folly, when it signed its code. Before he got through, it was apparent that he saw ahead a permanent and constructive type of self-control by industry, under a certain amount of Government supervision. An abstract of his remarks follows:

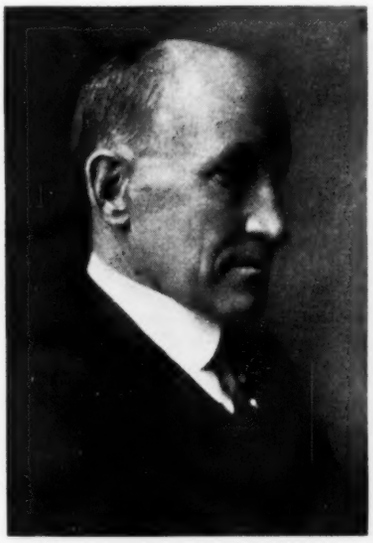
"In signing its code the cotton textile industry displayed glorious and sublime faith. It committed itself to the proposition that the increase in cost could be converted into an increase in price without seriously checking the demand. Indeed it went further; it announced its belief that demand would increase in the face of rising prices. Whether this act of faith will be justified by the action of the markets we do not yet know. At the moment it seems doubtful. If all goes well your boldness will prove profitable, but if the market for your goods acts in a normal manner and demand is checked by the increase in prices, you will be faced with a situation which will require something more than boldness. It will require great wisdom and perhaps a willingness to make great sacrifices.

"You will be attacked from the front, on your flanks, and in the rear. The attack from the front will come from your customers. In order to keep your mills running and your working people employed, you may be forced either to sell your goods without a profit or to keep them yourselves until the normal, as distinguished from the abnormal, forces of recovery have had time to make themselves effective. In short the N.I.R.A. and the code which you have signed may have committed you to what may amount to a capital levy to bridge the gap between the effective date of the code and the effective date of normal recovery.

"Your flanks will be harassed by labor disputes, which are inevitable under the new conditions which the N.I.R.A. has created. Labor organizations will struggle to increase their control of labor in all fields and as a result you will be confronted with unrest among your own employees and probably also with struggles between competing unions.

"Moreover, you may be attacked in the rear by the government itself. The administrator, confronted by labor leaders struggling for power, on one side, and by consumers struggling to keep prices down on the other, will be facing a dilemma where no human being can be wholly fair to you. And when Congress convenes in January you will see a political riot which may go to almost any length.

"That you faced these problems and decided to take the risk when you signed the codes I have no doubt. I honor you for your courage. The obstacles in your path are undeniably formidable, but there are two reasons why, I think, you have chosen wisely. One is a practical reason, based on what you can see in in the immediate future. The other is based on a forecast of a more distant future—the view of the industrial statesman.



Prof. Philip Cabot

Frank I. Neild

Dr. Robert W. Bruere

"As we look back on the NRA five years hence we shall recognize that the most important feature of the recovery act was that it suspended the operations of the anti-trust laws which had previously made national suicide mandatory. We risk little in predicting that in their old form the anti-trust laws will never again be enforced, and the more distant future of your industry to which your statesmanship must be applied will be controlled and moulded by this fact.

"There is small reason to hope that with the sort of government we have in this country, or with the sort we are likely to have, government regulation of industry in detail can possibly succeed. It is hardly too much to say that the future of the nation depends upon the trade associations which play their part in the new industrial organization, because the burden of regulation will rest upon their shoulders.

"It is true that they will be under government supervision, but we have had experience enough with government supervision to convince us that the vision is of an inferior, and not a superior, quality. Nowhere in the world have democratic governments shown themselves capable of dealing wisely with intricate economic problems. Even England has failed. Government regulation of industry means regulation by bureaucrats under the control of politicians, and there is abundant evidence, both in this country and Europe, that such regulation of our economic life would destroy it.

"You stand on the threshold of a great enterprise. It is too late now for you to turn back. You have accepted the responsibility of leadership—and you must stand or fall by the results."

NACM OPPOSES LIFTING LIMITS ON MACHINE HOURS

IN NO uncertain terms, the National Association of Cotton Manufacturers, at its annual convention in Boston Oct. 4, came out in defense of the code provision limiting machine hours which has been under attack. It adopted a resolution urging that applications for removal of such restrictions be not granted by the Administration. The text of the resolution follows:

"The effectuation of Code No. 1 under the NIRA marked the emergence of the cotton textile industry from an economic chaos. A primary cause of the chaotic conditions which have prevailed for years in this great industry was a lack of any generally accepted principle of restriction of output. Mills ran their machinery without limit and worked employees long hours. Prices were so demoralized that it became virtually impossible to recover costs and all this meant wages were depressed below American standards of living.

"The setting up of the cotton textile code marked a definite opportunity and also imposed an obligation both on cotton textile manufacturers and upon the Recovery Administration. The vital principle in the code was the limitation of hours which machines in the cotton textile industry may operate. This limitation in the code provides for not more than 80 hours per week of productive machine operation.

"This limitation further accomplishes the important social improvement of eliminating the graveyard shift, which is the working of employees during the midnight and early morning hours.

"There now impends an application to the Recovery Administration to change the code in respect to machine hours per week; in other words, to scrap the principle of machine limitation which is absolutely vital to the continued existence of this great industry.

"A granting of this application and the removal of restrictions on operation of machines and permitting 24-hour continuous running would plunge at one stroke cotton textile mills, employees and whole communities into demoralization worse than prevailed prior to July 17, 1933, when Code No. 1 went into effect.

"It would also restore the graveyard shift, now practically eliminated.

"The National Association of Cotton Manufacturers, assembled in annual session at the Copley Plaza Hotel, Boston, Oct. 4, 1933, therefore

"Resolves, That it is urgently necessary that applications for removal of restrictions on machine hours not be granted by the administration."

Although not addressing himself to the particular problem raised by application for removal of such restrictions, Ernest N. Hood, president of the association, in his banquet address presented facts which indicated the need for careful control of production. He said, in part:

"While under the provisions of the code machinery hours are limited to 80 per week, and we are permitted to regulate production, may I call your attention to the fact that actual control of production as applied to any particular line of cotton textiles is not yet a fact.

"It appears that the industry at large has accepted the idea that two 40-hour shifts mean normal production but this is not so. While some divisions of cotton manufacturing, such as print cloths and narrow sheetings may be able to run 80 hours per week regularly, there are other sections which may find it difficult to operate consistently even 40 hours.

"The 40-hour shift was adopted as giving some manufacturers sufficient time for their usual production, while the second shift is permitted to provide flexibility for those mills who used more production in emergencies, for mills on style fabrics many of which are seasonal, and for mills with orders when the time element is vitally important.

"Statistics of the industry as a whole indicate that normal demand can only be met by operating all the spindles in place, an average of over 60 hours per week throughout the year, but this average of 60 hours per week would not of course apply to all branches of cotton manufacturing.

"Production can be satisfactorily controlled only through group action. The industry is in a position to govern itself through groups as the statistical set-up under the cotton code provides the necessary data. While this complete machinery has not yet been set up it is apparent that groups within the industry may function effectively with authority of the administrator to compel compliance of minorities.

"Take for example the wide sheeting mills which comprise a relatively small group. In this group statistical information is already available to indicate that the country cannot consume the production which would result from an operation on all wide looms 80 hours per week.

"It should be a comparatively simple matter in such a group as this to decide upon a uniform production schedule, applicable alike to all members of this group, which would insure a balancing of production and consumption. Once such a schedule had been adopted by a percentage of the group, and approved by the Administrator, it would become law and be binding upon all mills turning out such a product."

Machine-Hour Limitation Essential

DURING the hearings on the cotton-textile code, Johnson & Johnson presented a strong case against the limitation on machine hours provided by the code. Despite this and other protests, this clause was retained in the code.

The company now proposes that, as an alternative plan, mills be permitted to operate four six-hour shifts a day, with the same wage for a six-hour day as that now required for an eight-hour day. In other words, manufacturers who avail themselves of this privilege would be entitled to operate 24 hours a day instead of being limited to 80 hours per week.

There is no question that, in the case of Johnson & Johnson and in other specialized cases, employment would be increased if limitation upon machine hours were removed. Nevertheless, the general application of this principle would menace the success of the entire recovery movement. If one company in a particular division of the industry operated 24 hours per day, all its competitors would be forced to do likewise. In no division of the industry with which we are familiar is there a potential demand for anything like this rate of operation. In fact, even full 80-hour per week operation under present and prospective conditions, would result in over-production and consequent demoralization. Furthermore, small mills formerly operating single-shift, which find it difficult to increase even to two 40-hour shifts, would be threatened with extinction.

The proposal to pay, for a six-hour day, the same wage rate now prescribed for an eight-hour day is an enticing one. On the surface, it appears to be directly in line with the philosophy of the recovery program. Its good features, however, are nullified by the corollary removal of limitations on machine hours.

We cannot help sympathizing with a company of the type of Johnson & Johnson which has erected efficient plants and now finds itself unable to supply to the communities affected the full rate of employment for which those plants were designed. In the interest of the industry as a whole, however, it would seem that this is one of the inequalities which must inevitably result if the drive toward release from an unprecedented emergency is to succeed.—*Editor.*

NACM STUDIES ACTIVITIES AND POSSIBLE EFFECTS OF AAA

A DETAILED explanation of just what the Agricultural Adjustment Administration is doing to help the farmer, and in particular the cotton farmer, and an economist's view of the long-range significance of such moves, were presented at the first business session of the annual meeting of the National Association of Cotton Manufacturers. Daniel S. Murph, chief of the cotton processing and marketing section of the AAA, supplied the detailed analysis and Alston Garside, economist of the New York Cotton Exchange, presented the market viewpoint.

Mr. Murph first stated that the plight of the farmer is such that his problems are of national concern. Statistics show that gross income from agricultural products shrank from $16,900,000,000 in 1919 to $11,300,000,000 in 1924 and to $5,100,000,000 in 1932. Gross income from cotton and cottonseed was $3,500,300,000 in 1919, $1,710,000,000 in 1924 and $431,000,000 in 1932, or a drop of 75% from 1924 to 1932 without considering the peak prices of 1919. On the other hand, total national income was rising so that agriculture's share was 11% in 1925, 9% in 1928 and is estimated to be 7% at present.

Approaching the situation from another angle, Mr. Murph stated that ever since 1920 the prices farmers have received for their products have been less than the prices paid for what they bought. Under the circumstances, farmers dug into capital and mortgaged everything. The result was that bank failures bear a striking relation to agricultural prices.

During the period from 1909 to 1914 there was a correct relationship between the farmer's income and outgo and, consequently, the conditions of this period were set as a goal by the AAA. The plan is to raise farm prices to reproduce 1909-1914 conditions.

Mr. Murph stated that 10,000,000 acres of cotton were plowed under this year and that prospective supplies of more than 4,000,000 bales were destroyed. The plan for 1934 has already been announced and acreage will be limited to 25,000,000. To take care of the extraordinary expenses involved, it was necessary to levy the processing tax. The floor tax was levied to equalize the prices of finished goods.

Mr. Murph also outlined the export and import situation with respect to the tax and the possibility of using surplus cotton to aid the needy. In conclusion, he said that it was the intention of the AAA to work in cooperation with industry in making its plans effective, and that every endeavor would be made to interfere as little as possible with established institutions and methods. He felt sure, he stated, that the textile industry would not fail to cooperate.

Alston Garside

Daniel S. Murph

New Factors in Cotton Situation

In his opening remarks Mr. Garside stated that the injection into the cotton situation of such factors as to government control of output, government credits, and fluctuating values of currencies made it impossible to rely entirely upon old-time economic correlations. These new factors must be taken into consideration in predicting what will happen in the next year or two.

Taking up the statistical position, Mr. Garside said that the world carry-over on Aug. 1 was 16,247,000 bales, or 7,200,000 more than normal. Production this season is estimated at 24,293,000 bales, or 700,000 bales below normal, while consumption is estimated at 25,500,000 bales, which is 500,000 above normal. If production and consumption turn out as indicated, the world carry-over of all cottons on July 31, 1934, will be 15,000,000 bales, or 6,000,000 bales above normal. This would be discouraging, he stated, if it were not for the fact that the carry-over was 17,412,000 bales on July 31, 1932, and the trend is in the right direction. However, the statistical situation would be far different if it were not for the 4,000,000 prospective bales destroyed by the AAA.

Looking to the future, Mr. Garside stated that it must be recognized that some cotton-growing sections of the world will be under government control while others will be on a free competitive basis. The program of the AAA is one of the most pregnant factors. If acreage next year is held to 25,000,000 acres, the crop will be 8,600,000 bales on a normal yield, 10,700,000 bales with the highest yield of the last ten years and 6,900,000 bales with the lowest. If world consumption of American cottton holds up, the supply for next season, presupposing a normal yield, will be only 18,200,000 bales, or 1,800,000 bales below normal.

Taking up the competitive situation, Mr. Garside said that foreign cottons have been getting cheaper of late as compared with American. On the other hand, RFC financing of loans to such countries as China and Russia would tend to lessen the shift from American. If Japan keeps to the boycott on India cotton (as a reprisal against Indian duties on Japanese cloth) about 1,100,000 bales of Indian cotton per year will be replaced by American.

With reference to consumption, Mr. Garside cited the increase in price of American cotton from 6c. to about 10c., the imposition of the processing tax, the increase in the average cotton-textile wage from 21.6c. per hour to 36.5c., and the expansion of payrolls in the industry from $12,800,000 in March to $27,000,000 in September. All these factors of higher costs will have a bearing on domestic consumption. Compensating factors are that a general upswing in business and prices would stimulate consumption and the fact that cotton has only gone up from 5.85c. last February to 6.40c. at present, in terms of gold.

In conclusion, Mr. Garside stated that the greatest threat to the program of raising prices is foreign production, which at 11,963,000 bales this season is the largest on record. The production control plan of the AAA, in raising American prices, will inevitably raise foreign prices and stimulate more planting. Foreign production cannot be increased as much next year as the domestic crop will be reduced, but if the program is carried on for several years the tendency will be for foreign growths to increase as much as our crop decreases. The chances are that world stocks will be about normal at the end of next season, i.e., July 31, 1935.

Textile Improvement

MAKES EVEN COLD FIGURES SEEM DRAMATIC

EVEN when improvement in textile employment and payrolls is reduced to cold figures, it is dramatic. As a sample, we offer a few statistics gathered on a recent trip to New England during which an attempt was made to estimate the extent of such improvement from last May to the peak in the summer, and the extent of decline since then. A few of the major textile centers were visited.

The picture of New Bedford is possibly the most spectacular one. Textile mill payrolls increased 137% between the end of the first week in May and the end of the first week in August. There was a slight drop from Aug. 5 to Sept. 9 (the last date for which figures were available); this decrease was approximately 10%. This means about 125% net increase between May 6 and Sept. 9. On the other hand, the industrial payrolls in that city, other than textiles, increased only 20% between May 6 and Aug. 5 and about another 15% from then until Sept. 9—representing roughly a 35% increase during the period. However the fact that other industries continued to show gains is hailed as encouraging in New Bedford on the basis that the effect of the codes is being felt.

In Fall River, textile payrolls increased 91% between May 6 and Aug. 12, which latter date represented the peak. There was a decrease of 23% between Aug. 12 and Sept. 16 but then the following week, that is the week ending Sept. 23, there was a sharp increase. The net result was that the increase from May 6 to Sept. 23 was 84%. This improvement in the latter part of September is particularly significant because it reflected the regain of confidence which was felt generally in the cotton industry. The non-textile payrolls in Fall River industry increased 9½% between May 6 and Sept. 2, the peak, and then declined 19% between Sept. 2 and Sept. 23. The net change between May 6 and Sept. 23 was a decrease of 11%. This again shows the extent to which the textile improvement has dominated the situation in that section of the country.

In Lowell, specific figures for the textile industry were not available. However the number of people employed in major industries in that city increased 53% from the end of May to the end of August while payrolls increased 30% during the same period. It is a little more difficult to present the picture in Lawrence since a different number of companies report month by month; however the approximate increase from May to the peak in the summer was 30 or 35%. In fact, it was stated in that city that the improvement was undoubtedly greater than indicated by this figure as certain of the most important industries were not reporting. At any rate, it is interesting to note that whereas a year ago this July 1,800 families were on the charity list in Lawrence, only 400 families were receiving such aid this year. It is estimated that the normal number of families on the welfare list is approximately 300 and that consequently the amount of distress is only slightly over what may be considered normal.

From several official sources come statistics which bear out this noteworthy improvement.

George A. Sloan, president of the Cotton-Textile Institute, reported to General Johnson that employment in the cotton industry had increased from March, 1933 to Sept. 1 by 145,515 workers and that, during the same period, monthly payrolls had increased by $13,200,000 or approximately 100%. The figures show an average of 320,400 employees for March, 356,000 for May, and 465,915 on Sept. 1. This carries the number of employed beyond the average for 1926. The fact that the payroll increase represented a larger percentage advance than did the employment figure was due of course to the wage increases.

Miss Frances Perkins, Secretary of Labor, presented figures on increases between July 15 and Aug. 15. The cotton goods industry reported the greatest number effected, 428 establishments in this industry reporting increases in wage rates averaging 44.7%, and affecting 242,474 workers, or 96% of the total number of employees in these plants. The knit goods industry reported wage rate increases averaging 35.5% and effecting 56,977 employees, while the textile dyeing and finishing industry reported 36,869 employees affected by wage rate increases averaging 29.4%.

Citing average hourly earnings, Miss Perkins reported that the cotton goods industry showed an hourly rate increase from 23.2c. per hour to 36.1c. and a drop in hours per week from 49 to 36.5 for the period of the survey. Wage rates in the woolen and worsted goods industry went from 35.8c. to 43.3c., with the hours dropping from 48.5 to 41.2.

The increase since the low point last March was reflected in the report issued by the Massachusetts Labor Department showing an increase of 63.2% in active spindle hours in the cotton mills of that State for August as compared with March, and an increase of 109% in payrolls between April and August, the advance in payrolls being greater than in hours because wage rates are now higher. The wool manufacturing industry in the State reported an increase of 150% in weekly payrolls between March and August.

AFTER the sharp decline in textile demand which set in in August, the up-turn in the latter part of September was particularly welcome. Prior to that pick-up, fears had been expressed that most of the ground which had been gained might be lost.

However, the situation is not yet entirely clear. It requires most careful watching. There is still the question whether or not the goods which have been made will be bought by the ultimate consumer. Our own private hunch is that the price increases will not act as an insurmountable obstacle, and that a steady improvement in retail

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Textile Code-Making

NOW EXTENDING TO MINUTIAE

THE business of developing codes for specific industries has now reached the detail stage. And what detail! There are already dozens of codes for different branches of the textile industry alone.

At the start of the NRA movement, we stated in these columns that the Administration desired to work with associations representing broad divisions of industry, rather than with a multiplicity of small units. A Government official remarked to us at that time that NRA "had no intention of appointing an administrator to deal with the polka-dot division of the necktie industry." And yet, some of the codes are approaching that degree of specialization. For instance we have in front of us a printed code for the "Manufacturers of Bagging for Raw Cotton Industry"—and still another one for the "Renovating of Second-Hand Bagging and Ties for Covering Cotton Industry." Similarly, we have a code for the "Hook and Eye Tape Industry" and another for the "Bias Fold Tape Manufacturers Industry." Then there are such vital codes as those for the "Textile and Hosiery Packing Manufacturers of the Graphic Arts Industries" and for the "Distribution of Woolens and Trimmings for Merchant Tailoring." However, it's all good for the printing business.

Under the circumstances, it is necessary to be rather choosy in reporting textile code developments, if the report is to be kept within reasonable limitations. Below are given major developments in the major divisions which have taken place recently:

ACETATE YARN

A separate code for the cellulose acetate yarn producing industry, submitted by Tennessee Eastman Corp. and Celanese Corp. of America, proposes labor provisions similar to those in the rayon yarn producers code—that is, a maximum work-week of 40 hours per employee based on four weeks average, and a minimum wage of $13 per 40-hour week. In submitting this code, these companies, who stated that they produce over 80% of the acetate yarn manfactured in this country, pointed out that the maximum hours and minimum wages proposed had been adopted and made effective by the two producers. The code also provided that the industry would set up within itself an agency to cooperate with the Administrator, and specified that no amendment, supplement or addition to the code should be effective unless assent thereto were given in writing by manufacturers producing at least 80% of the total domestic production of acetate yarn for the twelve months preceding the adoption of such amendment. It was further stated that statistics on production would be supplied by each producer to the Administrator or any government agency designated by him.

CARPETS AND RUGS

Hearing on the carpet and rug code, details of which were given in last month's issue, was held Oct. 4, before Deputy Administrator H. B. Ludlum, Jr. Frederick B. Klein, president of Alexander Smith & Sons Carpet Co., served as industrial advisor to N.R.A. H. L. Gutterson reported that since Aug. 15 when the industry voluntarily accepted the tentative code employment had increased 17 to 25%. At the hearing, groups of jobbers, buying syndicates and retailers protested parts of the trade practice provisions.

COTTON

General Johnson appointed the following members of State industrial relations boards for the cotton-textile industry:

Georgia: Representing employers, H. L. Williams, Swift Mfg. Co., Columbus; representing employees, O. E. Petry, secretary, Georgia Federation of Labor; representing the public, Thomas H. Quigley, Georgia School of Technology.

So. Carolina: Representing employers, J. E. Sirrine, Greenville; representing employees, Earl Britton, Columbia; representing the public, H. S. Willis, Clemson College.

Alabama: Representing employers, George H. Lanier, West Point Mfg. Co.; representing employees, C. D. Finch, Birmingham; representing the public, P. C. Davis, Alabama Polytechnic Institute.

No. Carolina: Representing employers, E. C. Dwelle, Chadwick Hoskins Co., Charlotte; representing employees, Forrest T. Cornelius, Salisbury; public representative not yet appointed.

Louisiana: Representing employers, E. J. Glenny; representing employees, James Dempsey; representing the public, Rev. Peter Wynhover.

DESIGNERS

The code for the textile designing industry was submitted through the Textile Designers Guild of America, Inc., by Robert Schey, president. It proposed a minimum wage of $18 per week for finishers and $30 for designers; $15 for office and/or errand boys and girls none of whom shall be employed on designing work; and $20 for bookkeepers. It also proposed a maximum work-week of 39 hours per employee but excepted executives or supervisors of a self-owned business. During periods of seasonal peak demand, the code proposed that maximum hours for designers might be increased to 48 per week but the employees so affected would be paid time and one-half for overtime.

MACHINERY

President Roosevelt on Oct. 5 approved and signed the code for textile machinery manufacturers, including provision for maximum work-week of 40 hours and minimum wage of 35c. per hour; and code for knitting machinery manufacturers, providing 40 hours maximum and 40c. minimum per hour.

MERCERIZERS

As noted elsewhere, the Mercerizers Association of America applied for modification of the cotton-textile code in order that the terms of that code might be applied to this industry. A hearing on this application was held Oct. 9.

PROCESSING

A hearing was held in Washington Oct. 9 on application for modification of the cotton-textile code, filed by the National As-

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purchasing may be expected, as other industries continue to gain. That, however, is a hunch: production policies should be based on something more exact than that.

The main thing to remember is that a little slackening in employment during the fall is not nearly so bad as a reduction during the winter months. In fact, it is regrettable that some of the production of the summer could not have been held over until the winter—on the chance that it might be needed. There is still time for the exercise of restraint and judgment which will act to prevent suffering and unrest this winter.—*Editor.*

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sociation of Finishers of Textile Fabrics, Mercerizers Association of America, and the Thread Institute. These three groups sought to have the terms of the cotton code apply to their industries. Deputy Administrator Whiteside presided (see page 116).

A modified PRA has been granted to the section of the processing industry represented by the National Textile Processors Guild, Inc. pending hearing on its code. A forty-hour week is specified, with certain flexibility as to averaging.

KNITTED OUTERWEAR AND FABRICS

The Rayon Circular Knit Fabric Manufacturers, Inc., proposed a code for that industry fixing maximum hours at 40 per week per employee when figured over a period of four weeks, and a minimum wage of $13 per 40-hour week. Meanwhile, however, this association has definitely decided to become affiliated with the Underwear Institute and application blanks for membership have been received from most of the members.

Knitted outerwear industry code hearing set for Oct. 16.

SILK

President Roosevelt signed the silk-textile code on Oct. 7. It prescribes a 40-hour week and minimum wages of $12 in the South, $13 in the North. It is effective Oct. 16.

As was expected, the sharp dissension on the labor provisions of the code submitted by the Silk Association of America was reflected in the hearing on that code held Sept. 12. It was adjourned pending clarification of the controversy.

James A. Goldsmith, president of the Silk Association, in presenting the code at the hearing argued that the basic wage scale must be the same for the silk, rayon and cotton industries, and cited the fact that the NRA had urged the silk industry last July to enter into an agreement with President Roosevelt whereby the minimum wage scale of the cotton code would be made applicable to silk. Henry E. Stehli, chairman of the planning committee of the Broad Silk Division, asserted that the code was the result of suggestions from 11 groups within the industry, representing 1,346 firms.

Taking the opposition viewpoint, Joseph H. Cull, representing a group of Rhode Island mills, but speaking, as he stated, "at the request of organized labor," declared that the industry "never will get rid of strikes until labor is paid a living wage." Edger A. Reilly, representing a group of commission throwsters and warpers, proposed a classified minimum wage for each of 10 crafts within the industry, ranging from $13 per week for redrawers to $30 for loom-fixers, all to be based upon a 40-hr. week. He advocated uniform minima for weavers in cotton, rayon and silk production.

Several witnesses appeared on behalf of the Silk Manufacturers Association of Paterson, N. J. The gist of their representations was that the minimum wages of $12 and $13, South and North respectively, in the code were too low; that silk and rayon should be on a uniform wage basis; but that, as one speaker expressed it, "rayon should be compelled to go up rather than silk to go down." It was suggested that the rayon weaving code be re-opened for further discussion, but this proposition was later turned down by the NRA.

Before adjourning the hearing, Deputy Administrator A. D. Whiteside announced that Senator Wagner was planning a meeting with representatives of labor and the industry for the next day, at which the entire subject of code controversies would be discussed. He reproved both sides for what he characterized as failure to understand industry was in process of evolution, and warned them that "threats can only bring chaos if participated in too far."

THREAD

Earl L. Milliken has been appointed executive director of the Thread Institute. Mr. Milliken has a background of 20 years experience as chief executive in several fields of endeavor, including seven years in textiles. As noted elsewhere, the Thread Institute is one of the three organizations which applied, at hearing Oct. 9, for inclusion under the cotton-textile code.

VELVETS

A code for the velvet manufacturing industry proposed a maximum work-week of 40 hours per employee with the proviso that, during the four months period from May 15 to Sept. 15, employees may work not exceeding 48 hours in any one week provided that the average hours of employment during the entire 12 months period of the calendar year does not exceed 40 per week. It proposed a minimum wage of $13 per 40-hour week except in the case of weavers for a 12 weeks learning period and others for a six weeks learning period. It further proposed that wage rates for piece and/or hourly workers should be at least 20% in excess of the average rates prevailing on June 26, 1933. It also proposed a group of fair practice provisions.

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Underwear Code Approved

THE code submitted by the Underwear Institute was approved by President Roosevelt Sept. 19 and became effective Oct. 2. The only condition made by the President was that manufacturers of fabrics sold or used mainly for underwear purposes made on flat, or warp, or circular knitting machines were granted a stay of 14 days after the effective date during which period they might show cause to the Administrator why they should not be included. Hearing for this purpose was held Oct. 14.

Important details of underwear code are abstracted below:

Branches included: (a) Knitted, woven and all other types of underwear manufactured from all types of materials, except women's undergarments (other than so-called athletic type), pajamas and negligees made from woven fabrics of silk, rayon, cotton or flannelette, and also excepting women's, children's and infants' lingerie undergarments made in Philippines or Porto Rico from woven fabrics. (b) Garments made in underwear mills from fabric made on underwear machines except the cutting and fabricating of shirts other than undershirts (provided however that manufacture of fleece-lined sweatshirts and garments of like nature are not included in this exception). (c) Fabrics sold or used mainly for underwear purposes made on flat, or warp, or circular knitting machines. (d) Knitted elastic fabrics. (e) Knitted tubing for meat bagging. (f) Knitted work-glove fabrics. (g) Knitted fabrics for leggings. (h) Knitted washcloths.

Child Labor: Employment of minors under 16 years prohibited.

Home Work: Code prohibits distribution, by any person governed by the code, of products or materials to anyone for home work.

Hours of Work: Forty hours per week except that maximum hours of repair crews, machine fixers, engineers, electricians and watching crews shall except in case of emergency work be 40 hours with tolerance of 10 per cent; and maximum hours for office employees shall be average of 40 hours per week over each period of one month.

Minimum Wages: $12 per 40-hour week in South and $13 in North, except learners shall be paid at standard piece-work rate but in no event less than $8 per week; and cleaners, outside workers and privileged employees shall receive not less than 75 per cent of the minimum wage provided for ordinary employees.

Machine Hours: Limited to one 40-hour shift for sewing machines and two 40-hour shifts for knitting machines.

Statistics: Provision made for regular reports on wages and hours of labor; number of productive machines in place and actually operated; and data on production, stocks on hand, new orders, and unfilled orders.

Productive Machinery Registration: Code provides that all persons engaged or engaging in the industry shall register with the industry committee each unit of their productive machinery.

Price Lists: Each person shall file with Underwear Institute price lists showing prices, terms, etc., and shall notify of any changes.

Unfair Trade Practices: (a) Code prohibits selling of merchandise at less than "reasonable cost" except defective goods. (b) Standard terms shall be 2/10 e.o.m. or net 60 days. (c) Prohibits fictitious re-sale price tickets, sale on consignment, granting of rebates, or secret selling conditions for customer. (d) Prohibits misrepresentation or misbranding of merchandise; false or misleading advertising; imitation of trade marks, trade names, and/or trade slogans of competitors.

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Johnson & Johnson Ask Four Six Hour Shifts

ROBERT W. JOHNSON, president of Johnson & Johnson, manufacturers of surgical dressings, asked the NRA to modify the machinery limitation provisions of the cotton-textile code to permit his mills to operate four 6-hour shifts daily in lieu of the 8-hour shifts now prescribed under the code for not exceeding 80 hours a week, with workers paid the same wage for the shorter day as required for an 8-hour day. Mr. Johnson stated that, while he felt that a six-hour day was essential to the success of the national reemployment program, he refrained from asking that the proposed modification be mandatory upon all mills, but suggested it as an alternative plan.

"The alternative plan here proposed," declared Mr. Johnson, "will provide an interesting experiment. It would approximately double the number of employees in our Chicopee mills in Georgia and Massachusetts, enabling us to pay them the same wages for less hours of work."

Prior to July 17, the effective date of the cotton-textile code, these mills employed more than 1300 persons and operated in excess of 100,000 spindles and some 1500 looms, all going into the gauze used in the company's surgical dressings.

Cotton Control Program

FOR TWO YEARS AHEAD IS MAPPED

COTTON still holds the key to prosperity in the South. This was demonstrated in September when representatives of cotton growers, headed by Senator Bankhead, of Alabama, petitioned the Administration to take immediate steps to boost prices paid to farmers for this year's crop and to adopt an effective plan for controlling production in 1934 and 1935. The program announced by the Department of Agriculture and the Agricultural Adjustment Administration, though not so drastic as that urged by farmers' representatives, is intended to maintain prices for this year's crop at 10c or above, and at the same time to quiet the growing demand for currency inflation. Although at this writing complete details of the cotton loan plan were not available, its general features were known, and the immediate effect was to cause farmers to hold their cotton for at least 10c., in anticipation of loans by the Government equivalent to that figure.

The cotton loan plan calls for the creation of a Government-owned corporation, known as the Federal Commodity Credit Corp., to pass R.F.C. funds on to the producers. The original features of this plan include:

(1) Making loans to farmers of 10c. per lb. on all cotton, ⅞-in. or better, low middling or better in grade; and 8c. per lb. on low middling or better, but less than ⅞-in. (2) Warehouse receipts will be acceptable as collateral if cotton is stored in Federal or State licensed warehouses, class BB or better. On cotton in licensed warehouses below class BB, an appropriate deduction will be required to compensate for increased insurance charges. (3) The corporation may call loans and require payment if the market on middling ⅞-in. cotton is 15c. per lb. or above, on the average spot market price, but otherwise the loans shall extend to June 1, 1934. Borrowers cannot sell pledged cotton without first liquidating the loan against it. (4) Farmers obtaining loans on the above conditions will agree to cooperate in the acreage reduction program for 1934.

The plan for 1934 acreage control, which may be extended into the 1935 season, if necessary, has as its objective the limitation of planting to not more than 25,000,000 acres. This program, which will be under the direction of Cully A. Cobb, of the A.A.A., calls for organization of county allotment associations in which participating producers will be compensated by acreage rentals and benefit payments for the land left out of cultivation.

The 1934 acreage control plan will be financed by proceeds from the processing tax on cotton, it was explained, and non-participating farmers will not share in the rental payments or the special benefits.

George Peek, of the A.A.A., issued the following:

"The 1933 cotton program is just being concluded with the distribution of checks to the participating producers. The results of this program are measured largely by the prevention of a disaster. Leaders of the Cotton Belt are unanimous in the opinion that had it not been for the cotton adjustment program this summer, utter chaos would have resulted in the South this fall. Harvesting a potential crop of 16,500,000 bales this fall and piling it upon a carry-over of 11,600,000 bales would no doubt have resulted in the lowest cotton prices in history. So, while we may get a certain degree of satisfaction out of what was accomplished through this summer's program, we recognize it as but a first step. The 1933 cotton program was not and should not be considered as an isolated piece of work. Adjustment will continue."

Checks to cotton producers who participated in the acreage adjustment campaign of AAA reached a total of 443,622 as of Sept. 30, involving total payments of $50,198,279.23. It is expected that a total of approximately $111,000,000 will be distributed at rate of $4,000,000 daily.

The Government is looking to possible foreign markets as an outlet for part of the cotton surplus. Russian and French interests were reported as negotiating for the purchase of large quantities of American cotton. In addition, as a means of combining relief for the destitute with efforts to raise the price of agricultural commodities, President Roosevelt ordered direct purchases of clothing and foodstuffs for unemployed relief.

Suggest Cottons for Farm Use Tax-Free

The hearing before AAA in Washington Oct. 2 and 3 regarding compensatory taxes on materials competing with the already taxed cotton, concerned only paper and jute products. Paper towel makers argued that any reasonable tax on their product should of necessity be very small since an average of 2½ paper hand towels are used per wiping while a cotton towel may be used for 2,250 wipings. It was also argued that if a tax was placed on paper towels, one should also be levied on mechanical hot-air dryers. Gummed paper and paper bag manufacturers also testified, alleging that competition with cotton products was minor.

C. O. Moser, vice-president of American Cotton Cooperative Association, urged compensatory taxes on paper, jute, and "perhaps rayon." Mr. Moser argued that there should be no tax on jute products used for agricultural purposes and added that the processing tax should not be levied on cotton goods for such purposes.

George A. Sloan, president of the Cotton-Textile Institute, presented statements from mill agents showing decreases in sales of bag sheetings made by the Florence Cotton Mills, Eastman Cotton Mills, and the Dwight Mfg. Co.

Norman B. Elsas, president of Fulton Bag & Cotton Mills, Atlanta, advocated that the tax on cotton manufacured into bags be abated. He asserted that there was no formula whereby the range of competition could be established because the competitors of cotton bags ranged "from tobacco tins to flour sacks." Mr. Elsas cited instances in which, he claimed, the processing tax on cotton had caused cancellation of orders for cotton bags, and containers manufactured from competing fibers had been substituted.

Cason J. Callaway, LaGrange, Ga., said that he formerly manufactured his own cotton bagging but that the processing tax had caused him to use burlap because of the lower cost.

In the field of twine it was argued that consumers' preference was dictated by other factors than differences in price. It was also testified that jute competed more with the hard fibers such as sisal in the tying materials field, than with cotton, and that a tax on jute would upset that field and should be accompanied by a tax on all hard fibers. It had similarly been stated at a previous hearing that cotton competed with rayon and rayon with silk but not cotton with silk; thus a compensatory tax on rayon would necessitate one on silk also if it was not to be discriminatory.

A number of witnesses believed that it would be best to delay action pending investigation to determine whether any excessive shift from cotton had occurred.

Dr. F. C. Howe, consumers' counsel, AAA has collected prices on four cotton textiles from 22 cities. Average price changes from Aug. 2 to Sept. 13 for these commodities were: sheets (81 in. x 99 in.), from $1.06 to $1.25; workshirts, from 74c. to 85c.; overalls, from $1.18 to $1.42; unbleached muslin, per yard, 10c. to 13c.

Mill Village Cost

A BURDEN ON MANUFACTURERS IN SOUTHERN STATES

(From TEXTILE WORLD'S *Southern Office)*

Following the appointment of a committee under authority of the cotton textile code to study and report on the question of home ownership by employees in mill villages, there has been an awakening of interest in this complex problem, but discussions have revealed widespread differences of opinion as to actual costs of maintaining southern mill villages. In the August issue of TEXTILE WORLD, this problem was touched upon briefly, including the best available estimates on the cost of erecting and carrying a typical four-room house. Additional information, with particular attention to auxiliary community services, is summarized in this article.

DATA showing mill village costs, representing all types of textile communities in the South, serve to emphasize the wide variety of methods and charges in handling house rents, water and light service, fuel, and other regular services. Rentals range from 20c. to 75c. per week per room, depending upon type and location of the house in most cases, while charges for electric lights and water show an even greater variation.

The records of one large cotton mill organization with several detached villages may be regarded as being fairly representative of conditions generally in the South. The costs of operating the villages of this company follow:

	1928	1929	1930	1931	1932
Village Expense.....	$49,055	$56,968	$51,756	$35,072	$30,108
Tenant House Repairs	73,062	138,423*	45,647	26,548	24,430
Township Maintenance	25,236	32,232	26,771	20,500	18,425
	$147,353	$227,623	$124,174	$82,120	$72,963
(*Included painting houses)					
Interest on Investment at 6% on appraisal value of $2,360,514.85	$141,631	$141,631	$141,631	$141,631	$141,631
Depreciation at 3% on above appraisal value	70,815	70,815	70,815	70,815	70,815
Total Cost of Operating Mill Villages	$359,799	$440,039	$336,620	$294,566	$285,409
Less — Rents Received From Operatives	110,324	111,304	75,335	64,220	65,915
Net Cost of Operating Mill Vallages	$249,475	$328,765	$261,286	$230,346	$219,494

Average Cost of Operating Villages, five years.....$257,873

On June 1, 1933, a census indicated that 3,176 active employees lived in company-owned houses (1,069). Against an average cost for five years of $257,873, the cost per operative was found to be $81.20 per year, or $1.56 per week. House rents ranged from 20c. to 50c. per room per week, with an average of 39c. per week, this charge including water, lights, scavenger service, street maintenance, and medical services.

The management of this same mill organization has prepared an estimate of the benefits to employees by reason of operating mill villages for one year:

Based on estimate of $20 per house per month, rent on 1,069 village houses would be	$256,560
Amount of rent which would be collected if all houses were occupied continuously	106,875
Estimated saving to employees in rent.....	$149,685
Estimated saving to employees on water and lights furnished free with houses, figured at minimum monthly charge usually made by power and water companies.....	24,930
Estimated saving to employees in rent, lights and water....	$174,615
Estimated saving to employees for free medical and nursing service	23,000
Estimated saving on fuel furnished employees at wholesale price	2,000
Actual amount spent on schools, sanitation, and betterment activities for one year	41,700
On life insurance premiums, paid by company, with policies free to employees	20,493
Estimated saving to employees on additional insurance premiums, paid by employees at low group insurance rates, above rates charged by industrial insurance agents.....	95,000
Total Estimated Benefits for Village Operation.....	$356,808

On 3,176 employees, this represents estimated saving of $112.35 per employee per year, or $2.16 per week.

Another large cotton manufacturing organization, located in North Carolina, has furnished TEXTILE WORLD with figures on the cost of operating one of its villages which is practically self-contained. The civic charges, such as street lighting, trash disposal, educational and recreational activities, figure about $20 per employee per year. The investment in houses and lots represents a loss to the company of about $47 per employee per year, making a total expenditure or net loss, per employee, for housing and village maintenance, of $67.50 per year, or $1.30 per week. These figures are based on current expenditures which are low in comparison with those of three or four years ago, and check closely with costs reported by the first company for 1932. The total figure reported by the first company, $219,494, if divided by the number of active employees (3,176), was $69.11 per year. The company reporting the lower village costs, however, charge employees for water and lights.

The Home-Ownership Question

In discussing the question of home-ownership for textile mill employees, Donald Comer, president of Avondale Mills, operating several plants in Alabama, says:

"Avondale Mills and Cowikee Mills have made a good many efforts to be of help to employees desiring to own their homes. At times we have run home-owning campaigns. We have helped quite a few of our employees buy farms out in the country, sometimes near and sometimes more distant from the mills. We have been of considerable help to the negro employees here in Birmingham in owning their own homes, thus being enabled to live in more desirable sections.

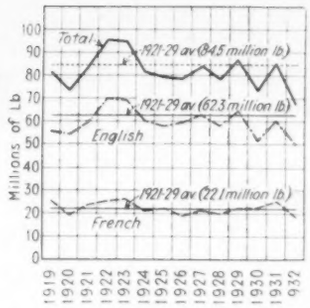
"We are undertaking a program of buying land within five to fifteen miles of our several mill communities with a view of dividing it into 25-acre tracts and selling it to employees who are interested, with the ultimate aim of lending the money for building homes on these small farms so that the families can live out in the country, where some member of the family can do some truck farming and other members can drive into town and work in the mill. That seems to us to be a fair proposition."

There seems to be little chance of getting mill operatives to purchase houses in the textile villages in any considerable numbers. K. P. Lewis, president and treasurer, Erwin Cotton Mills Co., Durham, N. C., with plants in several North Carolina towns, agrees with Mr. Comer and others. He says:

"I do not see how a practical plan is going to be worked out to do away with southern mill villages. I can see some hope of selling houses to employees of our mills at West Durham, which is located convenient to the center of Durham, but I do not see any chance to sell houses to people living at Erwin and Cooleemee, both of which are mill villages containing no other interests except the mills. It is a great expense to the mills, of course. The only compensating benefit we get is that we are able to control and better the personnel of the villages, and their condition."

Worsted-Yarn Trends

WHARTON SCHOOL REPORTS ON PRODUCTION AND EQUIPMENT



U. S. Worsted Sales Yarn Production

◆ *For the last five years the Wharton School of Finance and Commerce, of the University of Pennsylvania, Philadelphia, has been compiling and analyzing data on worsted-yarn production and spinning equipment. A complete report of this work, prepared by H. S. Davis and G. F. Brown, of the industrial research department, has just been published. A brief summary follows:*

THE production of worsted yarn in 1932 was about 26% under the output in 1929. In pounds of equivalent 30s, however, the decline was even greater, amounting to about 31%. The term "pounds of equivalent 30s" means the amount which the same yardage would have weighed if the yarn count had been 30s, and is used to permit a better comparison to be made between the activities of different years than would be possible on the basis of actual pounds. Table I shows what the average yarn counts actually were, and it will be seen that the greater decline in pounds of equivalent 30s was due to a drop in the average size of the yarn. Both figures are given for each year in Table II.

While the greater portion of both the English and French yarn spun during the period was woven into cloth, an increasing portion was knitted. About two-thirds of the yarn spun for weaving purposes was produced by integrated firms for their own consumption. Weaving-yarn production declined 24% from 1929 to 1932, knitting yarn much less, and carpet and mohair yarn much more. About 70% of the English yarn and about 60% of the French was made in New England.

As shown by the accompanying chart, the production of worsted yarn for sale between 1921 and 1929 averaged 84.5 million pounds per year. English yarn during the same period averaged 62.3 million pounds, and the French yarn averaged 22.1 million pounds. During the earlier part of the period, weavers were the largest buyers of both English and French yarn, but in recent years knitters have purchased the largest share of the yarn sold.

Since 1924 the sales of English weaving yarn have tended to increase, while the sales of French weaving yarn have tended to decrease. In the knitting field, the sales of English yarn since 1924 have followed a horizontal trend, while the sales of French yarn have moved definitely upward. During the last four years about 10% of the weaving yarn sold and about 33% of the knitting yarn sold has been produced by the integrated weaving firms. Just after the war these firms supplied over 20% of the weaving market and only 15% of the knitting.

An interesting trend in the type of spindles used is a pronounced drop in the number of English flyer spindles since 1918, as noted in Table III. Since English ring spindles have not increased sufficiently to offset this drop, the result is that a slightly higher percentage of the English spindles of the industry are of the cap type today than was the case in 1918. Nevertheless, it is essential to note that since 1925 the number of English ring spindles has increased 19%, as against a decrease of 13% in cap spindles, as shown in Table IV. In the French division ring spindles are gaining at the expense of mule spindles.

The number of both English and French spindles owned by firms producing yarn only for their own use declined throughout the period. In 1932 about 8% of the English spindles and 2% of the French spindles were owned by inactive firms. On January 1, 1933, it is estimated that there were available for operation, under average competitive conditions, about 2,330,000 worsted spinning spindles, of which 65% were English and 35% were French.

During the first six months of 1933 an average of 46% of the total number of worsted spindles in the United States were idle, according to reports of the Bureau of Census. This is 5% below the peak annual figures of 51% reached in 1932 after a consistent increase since 1923. During 1932 about 247,000 spindles were run on more than one shift, and only 49% of the spindles in the country operated; while in 1923 only 221,000 spindles were run on more than one shift and 88% of the spindles operated.

TABLE I—Average Count of Worsted Yarn

Year	English System	French System
1929	26*	25** 32
1930	26	25 32
1931	24	24 28
1932	24	24 27

*Excluding mills producing only carpet yarn.
**Including mills producing only carpet yarn.

TABLE II—U. S. Worsted-Yarn Production in Millions of Pounds

Year	Total		English		French	
	Actual	Eq. 30s	Actual	Eq. 30s	Actual	Eq. 30s
1929	171.1	150.8	131.9	109.0	39.2	41.8
1930	137.7	123.6	102.3	85.9	35.4	37.7
1931	154.8	127.4	114.8	90.1	40.0	37.3
1932	126.8	103.5	94.3	74.3	32.5	29.2

TABLE III—Distribution of Worsted Spinning Spindles by Kinds as of Dec. 31, 1918 & 1932

Year	Total	English	French	English	Cap	Flyer	Ring	French	Mule	Ring
	In Thousands of Spindles									
1918	2,423	1,697	726	1,697	1,488	133	76	726	691	35
1932	2,514	1,684	830	1,684	1,503	89	92	830	737	93
	In Per Cent									
1918	100%	70%	30%	100%	88%	8%	4%	100%	95%	5%
1932	100	67	33	100	89	5	6	100	89	11

TABLE IV—Percentage Changes in Worsted Spindles by Kinds.

Comparison as of Dec. 31	Total	English	Cap	Flyer	Ring	French	Mule	Ring
1918 to 1925	+18%	+14%	+16%	+ 1%	+ 1%	+25%	+20%	+137%
1925 to 1932	—12	—13	—13	—34	+19	— 9	—11	+11

Full-Fashioned Defects...

MINIMIZING FLY-OUTS, NEEDLE BREAKAGE AND OTHER DIFFICULTIES ENCOUNTERED IN A HOSIERY MILL

By Albert E. Parker
Educational Instructor,
Ajax Hosiery Mills, Phoenixville, Pa.

CAUSES and remedies for faulty narrowings, catch-bar trouble, and cuts in the fabric were discussed in a previous article (May, 1933). In the following paragraphs will be pointed out the ways in which the foreman and fixer can correct the conditions responsible for other faults commonly met with in full-fashioned manufacture.

Jumping of the silk over the tops of the sinkers gives rise to defects known as fly-outs. The jumping is the result of insufficient tension on the thread when the carriers are laying the silk in the throats of the sinkers while making the course. In a case of this kind, it is necessary to make certain that the tension rings are working freely. These rings should ride up the ring holders when the carriers are going across. Too heavy a ring or too little tension will cause the rings to rest at the bottom of the holder, rendering them absolutely useless. If the snapper cam is timed ahead, or the snappers set too low, fly-outs will also occur, due to too much slack in the silk.

Needle Breakage

When the knitter complains that his machine breaks too many needles, there are several things to be investigated before any adjustments are made. First, it should be determined whether or not the needles are breaking along the selvages. If they are, the knitter will find the broken needles when starting the set. This is a sure sign that the carriers are touching the sinkers, either because of the rebounding of the carriers or the failure of the index pin to hold the lock dial on the carrier head in the proper position. Next, the carrier racks should be tested; and if they turn too freely, they should be tightened. There should be no end play in the spindle. The index pin is most likely to jump out of the nick in the lock dial when the machine is plating in the splicing, because there is excessive pull on the nut while the retarding lever is holding the carrier back. This rule applies in the same manner to the pointex rack.

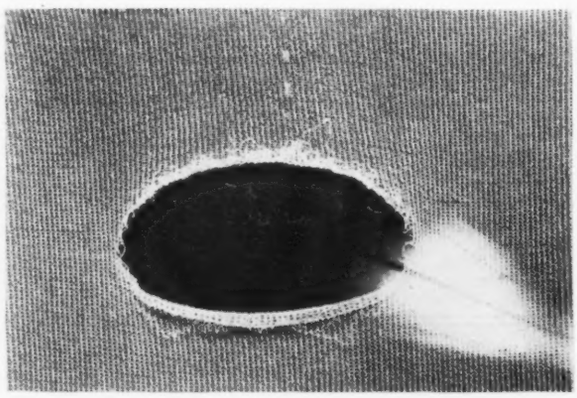
Improving Friction Leathers

Poor friction leathers are also responsible for broken needles and bad selvages. If the leathers are glazed, they should be brushed with a wire brush, and a little neatsfoot or castor oil applied to the leather. It is best to have extra leathers in reserve, as it takes a few hours for the oil to soften the leather and give it the proper gripping qualities.

Friction leathers which have been worn down to the rivets should be replaced.

If the needles are broken in the narrowings, the trouble may be caused by closed grooves in the narrowing points, too much hook on the points, or not enough clearance between points and needle-beards when transferring the stitch. Likewise, if the narrowing machine is set too high or too low, broken needles will result.

Fig. 1 (below) A fly-out



The test for narrowing-machine height is the same as the test for narrowing holes as described in the previous article.

If the needle-beards drop off in different parts of the fabric without any apparent reason, too much press is usually the cause. In a case of this kind, the bit on the presser cam should be lowered if possible.

Most of the broken needles on the footer are caused by improper creasing of the heels and poor condition of the transfer bars.

Poor Plating

A large percentage of poor plating is caused by running the machine at too high a speed while going through the splicing. The proper setting of the splicing carriers is a lead of $\frac{5}{8}$ in. With this short lead, too much speed will cause a slight rebound of the carriers, and poor plating will be the result.

The manner in which the carriers, especially the left heel carriers, is threaded is very important. The thread should go as directly as possible from the snappers to the carriers, so that the tension will be the same in both

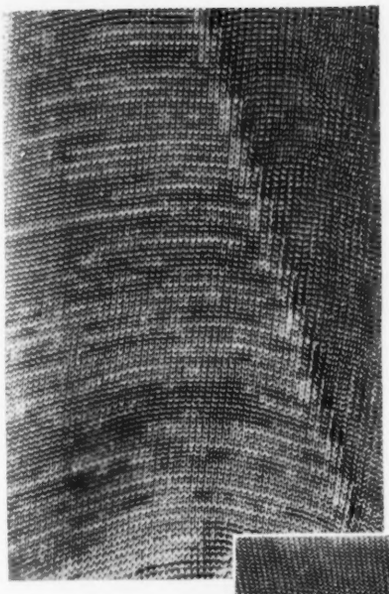


Fig. 2 (at left) Defective plating

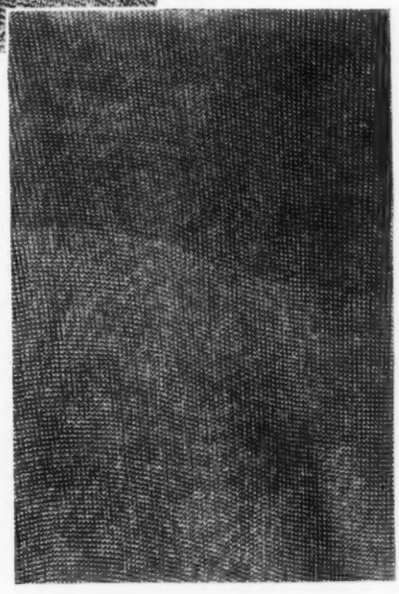


Fig. 3 (at right) Two-tone effect

directions which the carriers travel. There should be plenty of tension on the splicing threads and free movement of the tension rings in order to insure good plating.

Irregular Lengths

To overcome irregular lengths in the knitting, it is necessary to have the set of silk humidified uniformly. It then becomes the duty of the knitter to make certain that the silk does not dry out and to keep his moistening device the same on all the sections, whether the silk be run over felts or through water boxes.

To obtain the required number of courses and to even up each section, a little blue chalk should be rubbed on the finger and thumb and the silk marked with it below the snappers so that the mark on the silk will come in the center of each section. The measurement for courses can be done best about 2 in. after the welts are turned. The machine should be run the required number of courses for 2 in. The measurement should then be taken, and the necessary adjustments on slacker and slur-cocks made until the required number of courses and evenness are attained. It is also essential that the knitter change his weights and the draw-off motion uniformly on each set. When a slur-cock is brought forward, the clearance between slur-cock and verge plate, or folding bar, should always be checked carefully. This clearance should be equal to the thickness of a divider.

To make adjustments for evening up the stocking, the amount of space between the slur-cock and verge plates should be checked. If the adjustment cannot be made on the jack bed, it is not advisable to make any adjustments on the verge plates, sinker head or needle-bars without the use of the proper gages. Making these adjustments without gages is likely to cause catch-bar jumps.

Sleazy Work

Elimination of irregular lengths and uneven stockings by the proper humidification of the silk will also do much to eliminate sleazy work. This is due to the fact that most sleazy work is caused by dry silk and uneven tension on the fabric. Should the machine show sleazy work after the adjustments mentioned previously have been made, a slight lowering of the needle-bars, or the raising of the knocking-over bits should remedy it.

Two-Tone

Occasionally the stockings will show two shades of color after dyeing, even when the loops or stitches are uniform throughout. This condition is caused by the mixing of two different lots of silk, and very probably, silk from different throwsters. The defect is very noticeable at the instep when the footer uses a different lot of silk from that used in the leg. It is particularly pronounced with the darker shades of hosiery now in vogue.

In order to avoid two-tone effects, a modification of the method used by manufacturers of ingrain hosiery should be followed in handling the various lots of gum silk. On ingrain, the planning department figures how much silk is required to make the number of dozens of hosiery needed of a certain color. They send this amount of silk to be dyed. When the lot comes in from the dyer, it is weighed and proportioned into two smaller lots, one for the legger and one for the footer. If the amount has been properly estimated, the small quantity left over is run off on a few sections of the legger and enough held in reserve to make the feet. In this manner, all of the silk is used.

This system requires more detail in taking care of the various colors than is necessary in handling different lots of silk in the gum, and the following plan will be found satisfactory for keeping separate the various lots of silk. Of three lots of silk, the first should be in the natural color, the second lot tinted pink, and the third tinted blue. When the leggers are started on the first lot, only as many machines as necessary should be put on. It is advisable also to confine the use of the lot of silk to one style of hosiery.

Balancing Footers and Leggers

After sufficient legs have been made to warrant starting the footers, only enough should be started so that the leggers can retain a lead. When the first lot of silk has nearly all been used, the amount remaining is estimated, and the leggers taken off accordingly. In this way, when the last legger is finished, there will be only enough silk for the footer to finish the remaining legs. If, in the meantime, another set of machines has been started on the pink, this will leave the lot tinted blue to be put on where the natural has been running, thus allowing ample time to clear up the first lot of natural-colored silk before that color again comes through. This method may seem rather complicated; but considering the fact that a higher percentage of good work is attained, it will more than compensate for the trouble entailed.

Double Cloths

EMPLOYING TWO SERIES OF BOTH WARP AND FILLING THREADS

By R. A. C. Scott

HAVING illustrated and described at length the structural characteristics of both warp- and filling-backed cloths, pseudo-backed cloths, and backed cloths with wadding threads,* the next step in proper sequence is the discussion of what are generally termed "double cloths," or cloths composed of two series of filling and two series of warp threads. The arrangements of face to back allow of many variations and orders of construction, which are determined by various factors, such as the following:

Relative Proportions

1. Relative proportions and thicknesses of the face and backing threads are governed mainly by the weight to be added to the face texture or by the decision as to whether the cloth is to have a very fine-appearing face and coarse back or vice versa. The most common and widely used arrangements of face and back in double cloths are the one-face, one-back, and the two-face, one-back constructions. When a very fine face is desired, the three-face, one-back arrangement in warp and filling is frequently used. Then a mixed order may be used; *i. e.*, one order for warp and another order for filling, such as one-face, one-back in the warp and two-face, one-back in the filling. Finally, irregular arrangements, such as one-face, one-back, two-face, one-back, one-face, one-back, two-face, one-back, in both warp and filling, constitute a convenient form in combining the 3/3 twill with the 2/2 twill, using the same count of yarn for back and face.

◆ ***One of the most interesting and, to the layman, most puzzling classes of fabric is the double-cloth variety. In this article Mr. Scott begins a detailed discussion of its design, perhaps the first thorough treatise on the subject ever written. In past issues he has discussed backed cloths. Later he will discuss the treble type. Designers are finding Mr. Scott's articles practical and helpful —and excellent material for permanent preservation in their scrap books***

In deciding the relative thicknesses or counts of the face and backing yarns, no hard and fast rule can be followed to insure any consistent degree of accuracy. In a general way, however, it may be quite safe to recommend the theory of proportionate thread diameters instead of counts. Therefore, assuming that the face and back weaves in every case are of similar firmness, the one-face, one-back arrangement should employ similar counts of yarn. In the two-face, one-back order, the face should be three times finer than the backing yarn; and similarly the three-face, one-back would require a face yarn four to five times finer than the back.

An Example

Let us examine this further in the light of practical application. In a two-face, one-back construction, employing the 2/2 twill back and face, using 4-run yarn on the face and 2-run on the back, what do we find? The diameter of 4-run is 1/66 in., or 66 threads is the maximum number which can be placed side by side; and 2-run measures 1/48 in., or 48 threads per inch is the maximum. [These yarn diameters are calculated on the Ashenhurst basis, as are also the following settings.] Therefore for the 2/2 twill the number of ends per inch is: (66 ends per inch x 4 ends in repeat) ÷ (4 ends in repeat + 2 intersections in repeat), or 44 threads per inch for 4-run. Similarly 2-run would allow 32 threads per inch.

Now let us suppose the single set of 44 threads is to be reduced 20% when used in double-cloth construction. Then in a two-face to one-back arrangement, the 4-run will have 36 ends and picks; and the 2-run, 18 ends and picks. This will give a firm face and a rather loose back, and certainly a very unbalanced fabric. By replacing the 2-run back with 1-run, we would have a properly balanced cloth; but this may be found to be too great a difference in counts to give a wide range of fabrics. Therefore, let $4\frac{1}{2}$-run be used for face and $1\frac{1}{2}$-run for back, allowing 20% reduction on single maximum set for double cloth. The following results: $4\frac{1}{2}$-run gives 71 diameters per inch and 47 threads per inch for 2/2 twill, $1\frac{1}{2}$ run gives 41 diameters per inch and 27 threads per inch for 2/2 twill, and a 20% reduction of 47 gives 38 threads face. With two-face, one-back arrangement, we would have 38 ends and picks for face and 19 ends and picks for back. This shows a 20% reduction for face and approximately a 30% reduction for back, making a much better-balanced cloth. Consequently by adopting the three to one ratio for counts and the two to one ratio of face to back, very satisfactory results are obtained.

Relative Firmness

2. The relative firmness of face and backing weaves has a direct bearing on the proportions of face ends and picks to back ends and picks. For instance, in one-face to one-back arrangement, using the same count of yarn, it would be folly to combine a 3/3 twill face and a plain-weave back. The resulting fabric would be far from

*The subjects referred to were covered in articles which appeared in the issues of June, August, and September, 1932; February and May, 1933.

satisfactory; but if constructed two-face to one-back, a much more uniform and better-balanced cloth could be obtained. A good guide, therefore, in deriving the correct ratio of face to back is to consider the relative number of threads per inch which each weave allows. For example, the maximum number of threads of 4-run in a 3/3 twill is 50 per inch, whereas in plain weave we have a maximum of 33. Consequently, allowing the usual 20% for double-cloth construction, we would have 40 ends and picks for 3/3-twill face, and 20 ends and picks for plain-weave back, arranged two-face to one-back. The resultant cloth would be in every way satisfactory and of practical application, while the one-face, one-back arrangement would require a much greater reduction to suit the firmer weave on the back, producing a firm back and a very loose face.

3. Looms which have boxes at only one side require the filling arrangement to be of an even order; *i.e.*, 2 and 2, 4 and 2, etc. Consequently, one-face to one-back warp may be conveniently picked two-face to two-back; and similarly, two-face, one-back warp can be picked four-face, two back in filling—providing, of course, that in each case the back filling thread is different from the face filling thread.

Method of Construction

As in the warp- and filling-backed illustrations, shaded squares will represent the backing ends and picks and solid marks or squares will represent the face weave. Therefore, in Fig. 50, which is arranged one-face, one-back, the 2/2-twill weave, as shown at *A*, is inserted in the squares where the face ends intersect the face picks, as designated by the solid marks. Similarly, the back weave, as indicated at *B*, is inserted where the backing ends and picks intersect, designated by diagonal marks.

So far, then, we have illustrated the correct interlacing of the face and back cloths; but in order to prevent the interweaving of the two cloths, it is necessary to lift all face ends while the backing picks are being inserted. These points are termed lifters or raisers and are indicated in Fig. 50 by dots.

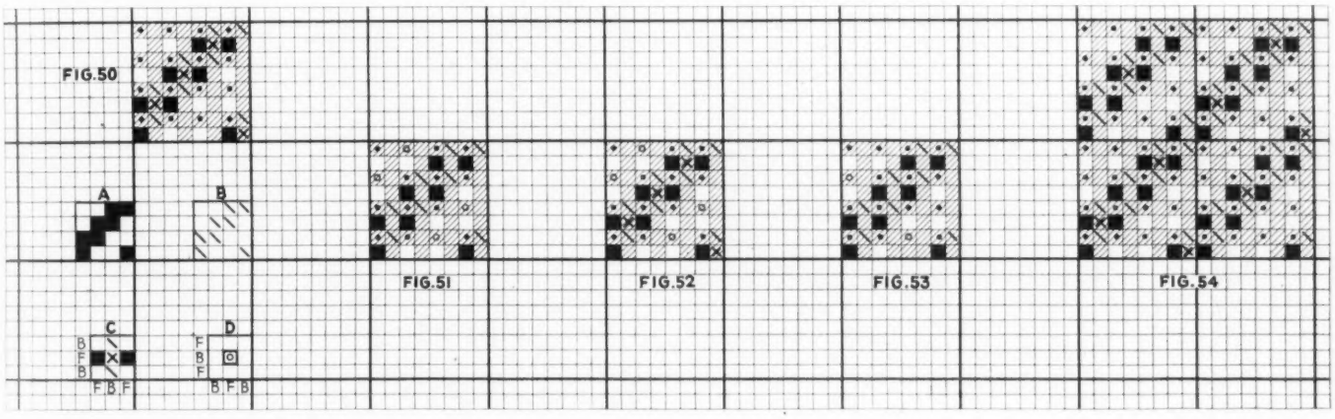
As far as the two cloths are concerned, this is all that is needed, as each series of intersections forms a distinct and separate cloth, one of these being on top of the other. Yet, before the design is complete, the two cloths must be combined to form one cloth. For this purpose a system of stitching or securing the one to the other is used, of which there are two types—warp and filling. For a warp stitch a back thread is raised over a face pick where a face float appears on each side, as indicated at *C*. For a filling stitch a face thread is dropped under a back pick when there is a back thread down on each side, as shown at *D*.

The stitches may be arranged in twill, sateen, or irregular and plain order, as in backed cloths, so long as the above conditions of covering are adhered to. In Fig. 50 the warp stitching points are represented by crosses, which are distributed in twill order. The filling method of stitching, using the same weave and arrangement is shown at Fig. 51, where the circles indicate the face threads depressed under the backing picks, also in twill order. A combination of both methods is illustrated at Fig. 52, using the same weaves, arrangement, and orders of stitching. The frequency of stitching employed here gives a firmer weave construction and is very useful for firming loosely constructed cloths, without increasing the ends and picks per unit of space.

Plain Order

The alternate or plain order of filling stitch, as indicated at Fig. 53, is another useful method, largely employed for overcoatings. Due to the fact that only alternate threads are stitched, colored yarns of medium contrast may be used for the unstitched threads only, for pattern production on the back, without any danger of these showing through on the face at the stitching.

At Fig. 54 a sateen order of stitching is illustrated, using the same weave and the same face-to-back arrangement. The very loose stitching order makes possible a much firmer cloth construction; and when worsted trouserings were in fashion this weave was widely used.



The settings of double-cloth fabrics vary considerably according to the purpose for which they are intended and the firmness of stitching employed. As a general guide, the following formulas may be followed:

For firmly constructed cloths using the sateen method of stitching: *Ends = single-cloth set + ¾ of single-cloth set.* As the stitching is increased, the setting would be proportionately reduced.

For medium-constructed cloths using the same weave: *Ends = single-cloth set + ⅝ of single-cloth set.* This also would be reduced in proportion to increased stitch.

In the case of loosely constructed cloths, such as woolen overcoatings, the setting rarely exceeds: *Ends = single-cloth set + ½ of single-cloth set.* In the latter group of cloths much greater latitude in setting is possible, due to the greater diversity of styles of finish applied. For instance, cloths set wide in the loom may not exceed: *Single-cloth set + ¼ of single-cloth set.*

The above approximations provide a very good guide in deriving correct constructions if tempered by the nature of the finish intended and experience.

Analyzing Silk Warping

INCREASING EFFICIENCY BY ATTENTION TO OPERATIVE, MACHINE, AND MATERIAL

By Otto W. Bitzenhofer

◆ *This article outlines a procedure by which silk mills can set about to improve their warping. The method is being successfully followed in Germany. Although some of the figures used as examples, particularly in the case of machine speeds, do not conform closely to figures common to this country, that fact in no way injures the value of the analytical procedure recommended.*

IN ATTEMPTING to rationalize silk warping, it is desirable first to study and eliminate all of the factors which unfavorably influence the operative, the warper, and the silk. From tests conducted on these factors it is possible to determine what is a good average performance, and perhaps to increase the speed of warping by adopting certain technical improvements, such as installing convenient switch or push-button controls and equipping the warper with signals which insure a constant supply of silk and other material.

Data obtained by a series of tests under various conditions should be broken down on the basis of performance per warp, per section, and per 100,000 yd. of thread length. The latter figure will permit comparisons to be made between warps of different specifications. From these breakdowns can be established the normal time requirements for warping, beaming, and preparing. Tables can be drawn up showing what should be expected in the case of various threads and sizes of warp.

In preparing, in a certain German mill, the analysis on which this article is based, it was agreed that an increase in production was possible in only three directions; namely, increasing warping speed, employing larger bobbins containing more silk, and installing a few technical improvements. Consequently, throughout the tests these factors were kept constantly in mind.

Throughout the department it was found generally possible to increase the warping speed, except in the case of one or two sections on a creel when the bobbins were nearly empty and too likely to run out unnoticed. Even in the latter case, however, the application of stop motions might have made the higher speed possible.

A device which facilitated the increasing of the speed is illustrated in Fig. 1. This consists of a metal tube slipped over the spindle and free to revolve on the latter. The bobbin is slipped in turn over the tube. This device serves to reduce the tension on the thread under the high speed, which is particularly important when the diameter of the bobbin is appreciably reduced. The device is also of special value at the starting up of the warper, as it serves to prevent a sudden jerk on the threads with the resulting stress. It was noted that without this device the bobbins had a tendency to jump both at the start and more or less continually when reaching the point of exhaustion. The use of variable-speed transmissions would, of course, permit slow speed at starting and toward the exhaustion of the bobbin.

It was also determined that production could be somewhat increased by doing some of the work of inserting the cross strings every 50 or 100 yd. while the warper was in action.

The accompanying tables are of course only a few of those developed in this analysis, but they are representative of the range. The true warping operations proper are reported as a group, but there are certain operations which both precede and follow warping proper. There is, for example, the time required in putting the bobbins on the spindles of the creel and passing the threads through the reeds. These operations are repeated only after several warps have been run. They vary only with variations in the type of thread, the size of the warp, and the number of threads per inch. Therefore, they are calculated separately and a proper share of their time requirement is assigned to each warp on the basis of average time per 100 threads.

The operations after warping and previous to beaming do not require detailed analysis, although the total time required for them must be determined by a series of tests. They include, for example, fetching paper for the beams and getting the beaming machine ready to

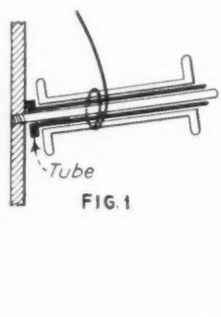


FIG. 1

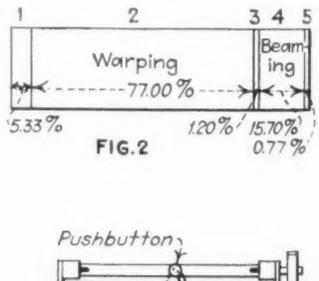


FIG. 2

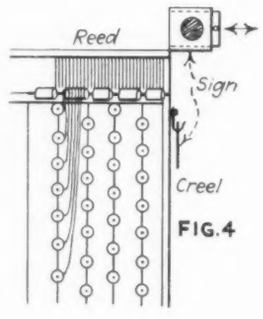


FIG. 4

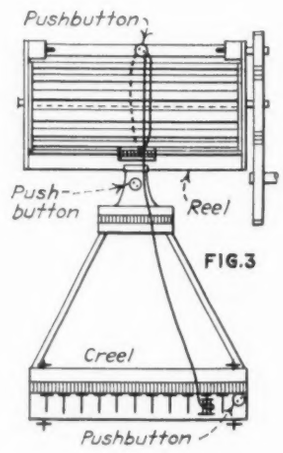


FIG. 3

Fig. 1. Tube between bobbin and spindle. Fig. 2. Proportions of time requirements. Fig. 3. Locations for push buttons. Fig. 4. Signal for stock room.

start. Tables must of course be established for the beaming operation proper. Finally, the operations which follow beaming must be considered. As in the case of creeling, the time requirements which precede and follow beaming must be averaged and the proper share applied to each warp.

The following is an example of normal time requirements for a certain warp as developed by a series of tests in the mill in question: The warp is a two-thread 13/15 denier silk crepe, 745 yd. long and composed of 21 sections of 400 threads each, or a total of 8,400 threads. It is drawn from 3.18-oz. bobbins.

1. Operations previous to warping, including passing the thread through the two or three reeds, at 9 min. per 100 threads	36.00 min.
2. Warping proper, at 50 yd. per min. (8.29 min. per 100,000 yd. of thread length)	519.00 min.
3. Operations following warping and preceding beaming	8.20 min.
4. Beaming proper. (14.2 min. per 100 yd. of warp length)	106.00 min.
5. Operations following beaming	5.20 min.
	674.40 min.

The relation of the time required for each operation to the total time for the entire job is shown graphically in Fig. 2. With tables similar to the examples in this article, estimates of the time required for warping can be determined in advance for any given set of conditions.

I have already referred to the desirability of remote control on warping equipment. In Fig. 3 are shown three good locations for push-button stations for starting and stopping the warper. With stations located at such places, the operative can take care of thread breaks, slubs, bobbin changes, and other matters more expeditiously than if she had to go to one given place, stop the machine with her feet or by throwing a lever, walk back to the place of the trouble, correct it, return to the lever, and start the machine again. Application of the push-button stations, as shown, reduced the warping time by 12% in the mill under discussion. It also improved the quality of the work, as the operative could watch the operation more carefully.

I have also already mentioned the desirability of a means for signaling the stock room when the operative is in need of additional raw material, new warp orders, and other things. A most practical signal consists of a sign installed on one of the upper corners of the creel, as shown in Fig. 4. The sign is composed of sheet metal painted white with a red circle in the center.

Naturally, before the final tests are conducted for the purpose of establishing standard time requirements, it is necessary that all technical improvements, such as those just mentioned, be installed, and that the equipment be repaired where necessary and otherwise put in first-class condition.

In increasing the warper speed, it must be remembered that a higher speed will cause a larger number of thread breaks. Of course, eventually the number of such breaks will be sufficient to counteract the increased production which might otherwise be afforded by the higher rate of speed. The effect of the increased speed on the quality of the work is another factor which must be watched.

The tests require a certain balancing of one factor against another. For example, employing a larger number of threads per section may improve the operation in some respects, but may at the same time cause a loss of too much time from thread breaks and exchange of bobbins. It might be better, for instance, to run a small section at high speed than to run a larger section at lower speed.

Table I—Time Requirements for Warping

Two-thread 13/15-den. crepe. Bobbins, 31,800 yd. Threads in warp, 8,400. Sections, 14 of 600 threads each. Warp length, 700 yd. Warper speed, 49/50 yd. per min.

Operation	Total Time Min.	Total Time %	Min. per Section of 420,000 Yd.	Min. per 100,000 Yd.	Single Time Min.	Single Time No.
1. Pure running time	199.0	49.75	14.21	3.39	....	...
Required indirect time:						
2. Exchanging bobbins	70.50	17.65	5.04	1.20	0.38	185
3. Leasing after every section	28.00	7.00	2.00	0.48	1.00	28
4. Changing section	32.30	8.08	2.31	0.55	2.30	14
5. Leasing every 100 yd	44.50	11.10	3.18	0.77	0.53	84
6. Marking length every 50 yd	5.00	1.25	0.35	0.07	0.31	16
Lost time:						
7. Repairing simple breaks	10.80	2.70	0.77	0.18	0.60	18
8. Repairing breaks requiring partial rewinding of section	5.20	1.30	0.37	0.08	1.30	4
9. Removing slubs	3.90	0.97	0.28	0.06	0.15	26
10. Small repairs	0.00	0.00	0.00	0.00	0.00	0
11. Fetching foreman for control	0.80	0.20	0.06	0.02	0.80	1
Total time	400.00	100.00	28.57	6.80	....	...

For comparison with tests on other warps, the time requirements of the three groups of operations per 100,000 yd. are segregated as follows: Pure running time, 3.39 min. (49.85%); required indirect time, 3.07 min. (45.15%); lost time, 0.34 min. (5.00%); total time, 6.80 min. (100%).

Table II—Time Requirements for Beaming

Two-thread 13/15-den. crepe. Threads in warp, 8,400. Warp length, 700 yd. Beaming speed, 10/11 yd. per min. Total thread length, 5,880,000 yd.

Operation	Total Time Min.	Total Time %	Min. per One Million Yards	Single Time Min.	Single Time No.
1. Pure running time	68.00	64.20	11.61	....	..
Required indirect time:					
2. Applying paper to barrel	7.40	6.96	1.26	0.39	19
3. Applying paper to edges	0.00	0.00	0.00	0.00	0
4. Tying ends of cross-strings	3.30	3.10	0.56	1.10	3
5. Obtaining steady control	1.00	0.95	0.17	0.50	2
Lost time:					
6. Repairing thread breaks	11.20	10.60	1.92	0.43	26
7. Clearing twisted threads	7.40	6.96	1.26	0.23	32
8. Fetching & preparing papers	5.10	4.80	0.87	2.50	2
9. Fetching foreman for control	2.60	2.43	0.45	1.30	2
Total time	106.00	100.00	18.10	....	..

For comparison with tests on other warps, the total time required is calculated as follows: for 1,000,000 yd. of thread, 18.1 min.; 100,000 yd. of thread, 1.81 min.; 700 yd. of warp, 106.0 min.; 100 yd. of warp, 15.2 min.

Table III—Effect of Bobbins and Speeds

Warping two-thread 13/15-den. crepe. Uniform thread length per bobbin.

Number of Bobbins	Warping Speed Yd./Min.	Min. per Warp	Min. per Section	Min. per 100,000 Yd.
400	33	669	31.8	11.3
400	38	605	28.8	10.3
400	44	557	26.5	9.5
400	49/50	519	24.7	8.8
600	33	503	36.0	8.6
600	38	458	32.8	7.8
600	44	431	30.8	7.4
600	49/50	400	28.6	6.8

Table IV—Effect of Thread Length per Bobbin

Warping single 13/15 grege from bobbins containing 35,000 and 42,000 yd. Bobbins, 600.

Yards per Bobbin	Warping Speed Yd/Min.	Min. per Warp	Min. per Section	Min. per 100,000 Yd.
35,000	33	810	40.5	8.6
35,000	38	745	37.2	8.0
35,000	44	707	35.8	7.6
35,000	49/50	676	33.8	7.1
42,000	33	785	39.2	8.3
42,000	38	720	36.0	7.6
42,000	44	682	34.0	7.2
42,000	49/50	641	32.0	6.8

Slashing and Weaving

PROBLEMS DISCUSSED BY GEORGIA OPERATING EXECUTIVES

George S. Elliott, superintendent, Pacolet Mfg. Co., elected general chairman, Textile Operating Executives of Georgia.

TEMPERATURE controls in slashing and weave-room lubrication schedules were among the questions discussed at the fall meeting of the Textile Operating Executives of Georgia, held at the Georgia School of Technology, Atlanta, Ga., Sept. 16. The largest attendance on record, attributed to the fact that Saturday is a more convenient day for superintendents and overseers to leave their mills since the new code limitations went into effect, was responsible for the meeting being even more successful than usual. Albert Lehmann, Jr., superintendent, Dixie Cotton Mills, LaGrange, Ga., general chairman of the association, presided at the meeting.

George S. Elliott, superintendent, Pacolet Mfg. Co., New Holland, Ga., was elected general chairman of the organization for the ensuing year. R. Donald Harvey, superintendent, Pepperell Mfg. Co., Lindale, Ga., was elected vice-general chairman. New members of the executive committee were selected, as follows: A. D. Elliott, superintendent, The Trion (Ga.) Co., and John B. Jones, superintendent, Shawmut Mill, West Point (Ga.) Mfg. Co., the latter being re-elected.

The "New Deal" Interpreted

The session opened with an inspirational address on "The New Deal and Its Cultural and Spiritual Aspects," by Dr. Herman L. Turner, pastor of the Covenant Presbyterian Church, of Atlanta. He declared that one of the by-products of the "New Deal" has been more available time for self-improvement, with the emphasis upon discriminative thinking, and that the spirit of the times is cooperation, rather than destructive competition.

D. R. Senn, superintendent, Enterprise Mfg. Co., Augusta, Ga., led the discussion on slashing problems. The first question was, "What amount of variation in per cent size applied is to be expected on warp yarns? If figures given are based on full sets of yarn, do you make allowance for variation in moisture?"

E. H. Rogers, agent, Fulton Bag and Cotton Mills, of Atlanta, in describing results with the circulating system, stated that he found a 2% variation, taking samples of warp yarns under three conditions: (1) beginning of the set with new size, (2) end of the set with new size, and (3) end of the set with size that has weakened down. George S. Elliott, superintendent, Pacolet Mfg. Co., Plant No. 4, New Holland, Ga., reported that tests made from one set of beams, taking off 2-yd. samples from every eighth beam, showed an average variation of 2¼%. These tests were made by determining the bone-dry weight and then de-sizing. It was found also that 4-in. samples taken at the particular place where the edge of the blanket makes slasher marks showed an extreme variation of 5% in the percentage of size applied.

One large mill running warp-yarn numbers from 10s to 25s was reported to be covering its rolls with yarn instead of flannel. The rolls are "dressed" with one strand of yarn full length of the roll every day. The rolls can be operated for six to eight months before it becomes necessary to remove all the covering of yarn. There was said to be some saving in cost as compared with flannel-covered rolls.

Several methods of measuring the ingredients in the size mix were described. In some cases, where there is found to be a variation in the level of the finished size, either warm or cold water is added to bring the level up to the predetermined amount. In other mills, according to those participating in the discussion, no water is added to the finished size, but careful measurements are made at the beginning of the mix. One member stated that his kettles are equipped with overflow pipes to maintain a uniform level, while others reported the use of pet cocks on the outside of the kettle to gage the height of water in the mix.

Temperature Controls

Considerable discussion was developed on the subject of automatic temperature controls in the slasher room. R. S. Steele, superintendent, LaFayette (Ga.) Cotton Mills, whose size kettles, size boxes, and both cylinders of slashers were equipped with controls about four years ago, reported that fabric weights run more even and moisture content is more constant, while since the installation of controls was made, weave-room production has increased about 2%. He said there has been practically no trouble from mildew.

George S. Elliott also reported excellent results with controls on the size box, kettles, and cylinders. His installation has one control for both cylinders. Operations, temperatures, and speeds can be varied for the different styles, he pointed out, with no difficulty, as a chart is provided for each style of warp. He was certain that controls in his slasher room had made possible considerable savings in process steam, and suggested that any mill planning to put on controls check the amount of condensation per day before making the installation, and then make a similar check after controls are in operation.

In another plant running 10s to 17s warps, having slashers fully equipped with controls, results during the last 18 months have shown that moisture content is more uniform, and early morning troubles have been practically eliminated. It was found after the installation of controls that the old rule-of-thumb method of operating slashers was not efficient, as some sets had been running too fast and others too slow. This plant runs approximately 7% moisture content in the finished warps. Another mill was reported as leaving 8% moisture content in warps.

Thermostatic or automatic size-level controls on the size box were said to be effective in keeping size at a constant level. Mr. Steele stated that, not only does the control maintain more even size, but it also prevents the size from congealing back of the cut-off. V. J. Thompson, superintendent, Manchester, Ga., plant of Callaway Mills, Inc., said that the

thermostatic control maintains level in the size box with variation of only 1 in. from high to low level.

Comparisons were made between acid-converted, thin-boiling starch and ordinary pearl starch liquified with enzymes. Walter Dillard, Jr., superintendent, Sibley Mfg. Co., Augusta, Ga., stated that, after using ordinary pearl starch liquified with enzymes for several weeks he had observed the following results: (1) increase in weight of warp yarn, permitting a change in yarn number as much as one whole number; (2) weave-room sweeps materially decreased, less shedding, thus showing better penetration of the size; and (3) elimination of trouble from pipes in the circulating system getting stopped up. He stated that it might be unfair to attribute all the improvements to the change in starch, as at the same time the change was made the mill had started a concentrated drive to improve results in the slasher room.

W. H. Hardeman, superintendent, Consolidated Textile Corp., Lafayette, Ga., whose report was read by the secretary, was of the opinion that pearl starch liquified with enzymes is preferable to thin-boiling starch, because it gives better penetration, does not cling to the cylinders, prevents the formation of lumps, and causes no trouble in the circulating system. He also stated that there is no difficulty in changing from one make of starch to another when using the enzyme liquifying agent.

Albert Lehmann, Jr., superintendent, Dixie Cotton Mills, LaGrange, Ga., felt that converted pearl starch is quite satisfactory for coarse fabrics. He experienced some trouble at first in controlling the fluidity of the converted starch, but continued to use it for several years, and has found that it permits a saving of about $1 per kettle.

Stretch of 2% to 2½% in warps on the slasher was considered by George S. Elliott to be reasonable, but above that amount the tension should be investigated. He recommended the use of friction-contact yardage counters at the front and back of the slasher to determine the amount of stretch. Tension on warps, it was pointed out, can be controlled by changing the amount of blanket (or cushion) on the take-up roll at the front, or by varying the gears. Frank H. Cooper, assistant superintendent, Fulton Bag and Cotton Mills, of Atlanta, stated that he had reduced the amount of stretch in slashing to less than 1%.

Several members gave their opinions as to the proper temperature that should be run in the size box to secure good penetration. These figures follow:

Mill	*Yarn Numbers*	*Temperature*
A	21s	190°F.
B	12s-17s	200°
C	8s	200-208°
D	7s-12s	190°
E	24s	200°
F	2½s-30s	205-210°
G	31s	200°

Double size boxes were said to be advantageous under the following conditions: (1) when warps contain reverse-twist yarns; (2) when warps are very wide and single boxes do not give sufficient penetration; (3) when it is necessary to get more weight of dry size on the warps; and (4) when heavy-sley warps require better penetration of the size. One member described a hollow immersion roll said to give better penetration in slashing. This roll consists of regular solid ends held together by metal rods spaced around the circumference of the drum-head ends.

Weaving Problems

Immediately following the discussion on slashing, the meeting was turned over to R. Ronald Harvey, superintendent, Pepperell Mfg. Co., Lindale, Ga., who presented the question on weaving. The increase in minimum wages for unskilled and semi-skilled workers, because it affects the cost of cleaning filling bobbins by hand, has increased the interest in machines for this work. In reply to the question on number of quills cleaned by machines, one member stated that his machine operating four heads cleans 380 quills per minute. One man handles all adjustments on the machine. It was said that the machine does not decrease the life of bobbins in comparison with hand cleaning. George Elliott stated that his machine with two heads cleans 96 quills per minute; and if it is adjusted perfectly, the quills are not damaged.

Another member, who stated that he did not favor the use of bobbin-cleaning machines for coarse soft-twisted yarn because he believed bobbins containing such yarn can be more efficiently cleaned by hand, found that the machine damaged quills slightly, but that breakage amounted to an average of only one bobbin in 16,000. Mr. Dillard reported machine-cleaning of about 90 quills per minute, with slight decrease in life of the bobbins. His machine is adjusted by the section man located nearest the machine. Other members said that the machine cleans from about 85 to 104 quills per minute. In one plant all quills for yarn coarser than 20s are cleaned by hand.

Several members gave their schedules for oiling looms under conditions existing in their plants. One detailed schedule was as follows: (A) Loom parts oiled four times weekly on 80-hr. schedule: pick cams and balls, pick camshaft bearings, crankshaft bearings, rocker-shaft bearings, and loose pulley. (B) Loom parts oiled two times weekly on 80-hr. schedule and when warp is out: crank arms, camshaft bearings, auxiliary-shaft bearings, idler gear and stud, treadle rolls and pin, filling-cam followers, protection-rod bearings, take-up-roll bearings, and Lacey top. (C) Loom parts oiled once each week on 80-hr. schedule: crankshaft and camshaft gears, parallel tongue, thread cutters, temple bars, shuttle-feeder parts, fork slide, starting-rod bearings, take-up parts, spring-shaft parts, let-off parts, beam and whip-roll bearings, harness-roll bearings, stop-motion parts, parallel stud and spring, feed and hold-back pawls, and bobbin support. (D) Bobbin disks greased twice yearly. Life of oak-tanned check straps, 23½ in. long, 21 months.

Another oiling schedule, not given in so much detail as the first, was reported as follows: (A) Oiled twice a week: crankshaft, motor bearings, pick cams, and camshaft. (B) Oiled when warp is out: whip roll, rocker, and other cams.

Several possible causes of slack-side cloth were mentioned. C. K. Cobb, assistant superintendent, Canton (Ga.) Cotton Mills, suggested that, if the trouble exists, the slasher should be examined to see if the press roll has the same amount of pressure on each end. The loom should be examined to see if the cloth rolls are worn. These should be replaced in pairs. The weaver should adjust whip roll and sand roll.

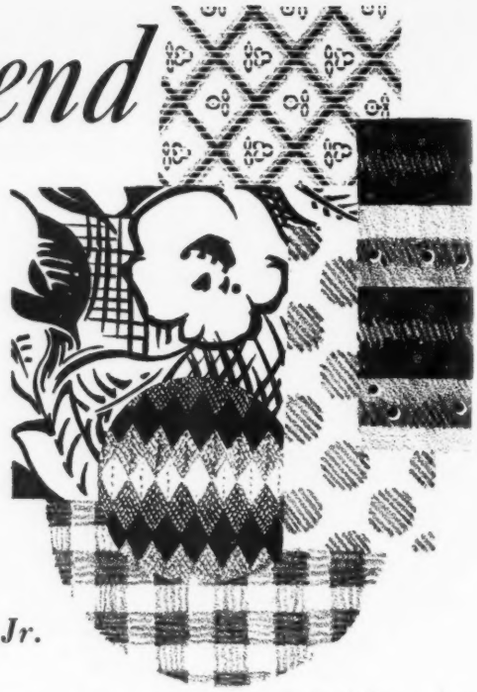
One member had experienced trouble with the core of the cloth "telescoping" as it wound on the cloth roll. Two possible remedies were suggested: (1) the use of a larger cloth roll, and (2) replacing the fillet on the sand roll. In changing to a larger cloth roll, it was said that it is desirable to knurl the roll.

Several members reported their experience with a new type of conditioning machine for setting twist in filling yarn. In this machine, it was explained, the liquid is sprayed on the bobbins as they pass along on a conveyor arrangement, a special penetrating agent being mixed with water. The proportion of this liquid to water was said to be 1 gal. of penetrating agent to 99 gal. of water. V. J. Thompson, superintendent, Manchester, Ga., plant of Callaway Mills, Inc., who said that six to eight months' experience with the machine had convinced him of its value, stated that the filling bobbins pass through the machine in about 30 sec. and are allowed to "set" for around two hours, but not in any specially equipped place for conditioning. His filling has a regain of 7 to 15%, he said.

In another plant one of these machines was said to have replaced three steamers. The bobbins are not allowed to "set" after treatment, but are taken directly to the weave room. Varnished bobbins, without special metal rings, are used and no trouble is experienced from rusting. Still another member stated that he allows the conditioned yarn to "set" for about 30 min. The use of a special bobbin penetrated with oil to prevent splintering on the end, due to the effect of the penetrating agent, was suggested.

Meeting Style Trend

HOW SILK OR RAYON DESIGNER SHOULD PLAN NEW FABRICS



◆ *In this article, which is an abstract of a paper presented at a meeting of the Philadelphia Textile School alumni, Mr. Mattmann discusses the sources for style information and outlines the procedure for turning out new samples.*

By Carl C. Mattmann, Jr.

AS expert as a fabric designer may be, he cannot disregard the dictates of fashion. He may decide that a specific construction is a good one; but if this weave is not in complete accord with the style, he is just wasting his time and money. Observation of coming garment styles is also important, in that the character of the garment may many times dictate the type of fabric that should be employed.

The reliability, accuracy, and completeness of the advance fashion information all are points of the utmost consideration. There are two fields of information—foreign and domestic—and the use of one without the other is oftentimes dangerous. The foreign sources include samples of new fabrics developed by leading European manufacturers and generally received from a private agent. Fabric- and garment-style trends are reported by private style advisors, and further information along this line is obtained in the fashion cables of the openings as published in the daily publication devoted to women's wear, and the interpretation of such cables as are given in the magazines of fashion.

Domestic points of information include dress stylists, leading dress creators, stylists of the important department stores and specialty shops, as well as converters and manufacturers of the better types of fabrics. Observation of the garments worn by society leaders at important events is often a sound inspiration.

There seems to be a definite sequence of fabrics. It is well to go back a period of years to determine how one type of construction follows another. It is found, for instance, that satins and taffetas generally precede or immediately follow ribbed fabrics, such as bengalines, poplins, and failles. Crepes are always in demand in one form or another. A large print season accentuates this demand.

If indications show a preference for the woolen or clothy types of material, this same feeling should be transposed to other constructions. An example of this transposition is the sand-crepe class of materials, which started out as an all-silk fabric and was adapted to rayon, so that today the construction is predominantly rayon. It is merely a dyeing and finishing process sometimes which makes a new cloth out of an old construction or fabric.

After decision has been reached as to the class of fabric to be designed, it is necessary to put all of the fabrics it is proposed to make on paper almost the same as an architect would plan a house. In order to keep expenses within reasonable limits, it is necessary to have the proper warp construction thought out before putting it on paper. The possibility of obtaining other weaves from this same warp should be borne in mind. This necessitates putting this warp on a number of shafts in order to obtain flexibility in weaves without the neeessity of redrawing the warp for each new fabric. For this, the straight draw is the most practical to use, regardless of what weave has been decided on.

It is well to note at this point that as certain fabrics need more or less warp ends than those required in another warp, it is necessary to have at least five or six warp constructions in mind so that they, too, may be put into work.

The next consideration is the filling yarns to be used. In each of the weaves, it is desirable to try as many different yarns as seems practical and possible. Some of the most interesting effects in the textile business in the last few years have been obtained in the combination of yarns.

Rather than becoming convinced too quickly that some construction arrived at early in the experiments is the most desirable, it is wise to make strike-offs of about ½-yd. of the different filling constructions which were laid out on paper. Very often some of the later attempts turn out better than had been expected.

Each strike-off should be boiled off by the designer and allowed to act in its own tendency. In view of the different weaves and different yarns, the blanket finish of the goods should be avoided. By the boiling off of each strike-off almost as soon as it has been completed, the designer can often remedy a faulty construction by adding or deducting a few picks.

After definitely deciding from the strike-offs which are the particular cloths that are wanted, then it is advisable to make at least 40 to 50 yd. of the approved constructions. After this has been done, it is necessary to inform the dyer and finisher of complete details as to warp, filling, and construction plus the desired results wanted. Here, also, the little boil-off sample comes into play again, because it will show graphically what is wanted. It is also important that the entire first piece be not given to the dyer. About 15 yd. should be retained in the grege, so that if the first dyed piece is not correct, another few yards are available for further experiments in finishing.

Irregular Woolen Yarn

By L. A. Crosland

OFTEN TRACEABLE TO UNSATISFACTORY CARDING

A VARIATION in counts is one of the most serious of the faults that arise in the making of woolen yarns. The variations can be divided into two groups: (1) variation from time to time in the same ropings, and (2) variation from one rub-apron height to another and from one side of the machine to the other.

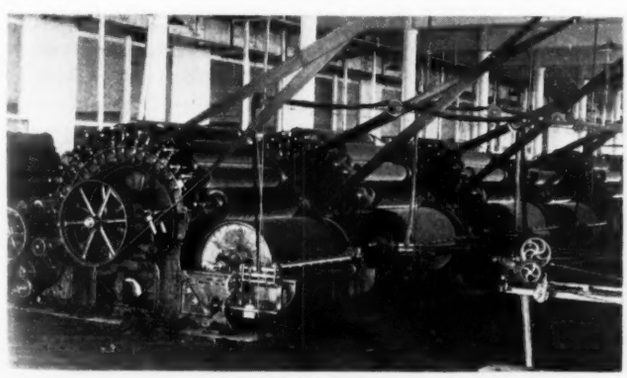
Variations coming under the first heading can be caused by one of the following factors, or by a combination of a number of them: (*a*) inefficient type of hopper feed, or incorrect setting of hopper feed; (*b*) slipping of feed lattices, driving belts, or any other belts throughout the machine; (*c*) periods which are too long between the stripping or cleaning of the cards; and (*d*) faulty setting of various rollers in the machine. The remedies for these faults are as follows:

a. Install an up-to-date type of hopper feed. It is recommended that a shutter be fitted above the scale pan to prevent any material falling into the pan after it has been weighed. An efficient stop motion must be fitted to stop the spiked lattice immediately the weigh is received. The scale pan should be of the free or self-centering type, as this insures that the same weight is required to balance the pan wherever the material happens to be distributed in the pan. Also the scale pan should be sensitively balanced either on hardened-steel knife edges or ball bearings.

In setting the hopper, care must be taken to set the comb evenly to the spiked lattice, and as close as possible without actually touching the pins in order to keep as thin a layer of material as possible on the sheet. The sheet must run as slowly as is consistent with getting the weight in reasonable time. The reason for these settings and speeds is that it is essential to have a small quantity of material falling into the pan at one time if accurate weighing is to be obtained. It does not matter how sensitive the pan is—if lumps of material are falling in, accurate weighing cannot be obtained.

To minimize any variation that there may be despite all these precautions, the pan should be kept filled level to the top edge, so reducing the percentage variation.

b. To avoid slippage of main driving belts, they should be arranged as cross drives, not only from the point of view of better gripping of the pulley, but because the surface of the belt is kept clean by the rubbing of the faces at the cross. This slipping can be entirely avoided by fitting individual motor drives to the machine, or by driving through chains and clutches. If the lineshaft in the latter case is carried under the floor, all overhead driving can be done away with.



c. More faulty ropings are made through running too long between cleaning the cards than through any other single factor. The actual time between these periods must be determined by the overseer, according to the type or material and the amount passing through the machine. Each blend must be treated according to these conditions, and stripping must not be done at regular intervals irrespective of these considerations. Card teeth which are filled with short fibers cannot work efficiently; therefore no consideration of labor economy must be allowed to interfere with this question.

d. Variation caused through wrong settings is usually easily traced to points where material accumulates.

Variation of the second type, from the height of one pair of rub aprons to that of another, should not exist with the single ring-doffer condenser, but may occur with the double doffer or the tape condenser. With the double doffer it is usually the ropings from the top doffer that are heavy, owing to that doffer having first pull at the material on the main cylinder when that cylinder is completely covered with material, the bottom doffer taking only what is left.

To remedy this fault, the rings on the top doffer should be made slightly narrower than those on the bottom one, and the speed of the top doffer should be increased slightly until the counts are found to be exactly alike. Both doffers must be set close enough to the main cylinder to clear it of all material. The top doffer must *not* be set farther away from the cylinder than the bottom one in order to equalize the counts. In the case of the tape condenser, variation is more likely to occur with the series type, which has a separate set of tapes to feed each rub apron, than with the endless type, on which one long tape feeds each end in turn. All the tapes on the series type must be set at the same tension; and the drive should be arranged so that the tapes are tight at the point of the division of the web, the slack being on the return when the tape is empty. With the endless type, thin places in the roping may be caused by reason of small places in the tape due to the tape stretching unevenly. Also, incorrect setting of the calender rollers may result in heavy bottom spools.

Variation from side to side of the machine is a very prevalent fault. It may be caused through fancies throwing excessively, because their speed is too high or because the angle strippers are running the material to one side of the machine. Grinding of the faulty angle strippers, or running them at a lower speed will usually cure this fault; but if it should continually recur, it is advisable to nail sheet cards to the angles instead of wrapping with fillet clothing.

NEW CONCEPTS ON USE OF SOAP IN

Degumming Silk Hosiery

By W. W. Bray
Director, Textile Research Dept., Procter & Gamble Co.

◆ ***Recent investigations have shed new light on such controversial subjects as the double-bath versus the single-bath method of hosiery degumming and dyeing, and the high rinse versus the low rinse. The results of these studies, which should be of interest to all hosiery dyers, are reported in the booklet "Hosiery Degumming," issued by the Textile Research Dept., Procter & Gamble Co., and are summarized in the following article.***

SILK HOSIERY degumming is naturally much like the degumming of silk piece goods. However, fundamental differences between knitting and weaving have led to such wide differences in the processing of knitted articles and woven fabrics that the dyeing of these two types of material is now almost completely divided into separate industries. The important differences are the size of unit handled and the yarn structure. The smaller size of silk hose permits its treatment in specialized, efficient machinery. Again, the low twist of tram silk from which most hose are made makes degumming so much easier that combination degumming and dyeing processes are possible. For these reasons, a revaluation of the relative importance of the factors which control silk degumming is necessary.

More vigorous boiling and more effective agitation reduce the time and the amount of soap needed to strip the gum from hosiery. The problem of washing action —removing throwing and knitting oils and dirt—becomes of greater importance with hosiery, because the soap concentration is so greatly reduced. Rinsing also has its own peculiar difficulties. The degumming agent and the method of boiling off determine very largely the characteristics of the finished stockings, such as handle, body, and wearing quality.

Influence of Boil-Off on Finish

The three broad types of finish in general use depend largely on the amount of silk gum remaining on the fibers. The full scroop finish is produced by removing all the gum and thoroughly cleaning the silk so that its natural scroop is apparent. It is produced mainly by degumming with a definite though small excess of degumming agent, preferably a low titer soap. This finish is characteristic of ingrain hosiery and has advantages.

The soft, rag-like finish is produced by leaving a very slight amount (about 0.5%) of gum on the silk. This peculiar effect can be easily obtained with a regulated, medium quantity of soap, because the last traces of gum are relatively much harder to remove. It is used chiefly in the heavier weights of hose.

The crisp, wiry finish is characterized by a slight stiffness, due to leaving from 2 to 3% of gum on the hose. Slow, controlled degumming with a carefully regulated minimum of soap is necessary to prevent blotches, oil spotting, or the removal of too much gum.

Degumming and Dyeing Methods

The double-bath process comprises boiling off the hose completely, rinsing thoroughly, and dyeing in a clean, fresh bath. Its chief advantages are simplicity and flexibility in operation; the lower dyestuff consumption; and the elimination of many operating troubles, such as non-uniform degumming, oil spotting, and prolonged exposure of silk to alkaline degumming bath.

The single-bath process, a more recent development, claims the advantages of shorter time, greater production and economy, and greater adaptability for producing the crisp, wiry finish on hose. However, these advantages are often not realized, because of the greater difficulty of dyeing in the presence of silk gum and the greater quantity of dyestuffs required. Moreover, single-bath degumming is difficult to control, because there are more variable factors to watch and much greater danger of spotted hose.

The single-bath method with a pre-scour employs a preliminary scouring operation to remove most of the oil, as well as some gum, before the final degumming and dyeing bath is brought on. This reduces the likelihood of trouble and some of the dyestuff expense by making the single-bath almost a two-bath process.

The foreign matter on raw silk hosiery consists chiefly of throwsters' oils, with more or less knitting oil and stains, such as lubricating oil spots and knitters' knots. With occasional exceptions, these should all be removed during the boil-off. While the oils are not difficult to emulsify, the low percentage of soap used in a single-bath process makes the combination of degumming and scouring a difficult matter. Most of the oil is probably emulsified at the start; then as the soap is used up in degumming the boiling temperature tends to break the emulsion; water hardness adds a further burden; and any salt used to exhaust dyestuff is a severe shock to the emulsion.

The following suggestions are given to insure thorough cleansing of the hose:

1. Provide zero soft water for degumming and rinsing.

2. Degum and dye separately (two-bath process) so that efficient degumming and scouring conditions can be maintained in the boil-off.

3. When operating by the one-bath method, use a pre-scour to remove most of the oil.

4. Make the pre-scour more effective by using a large proportion (roughly half) of the total soap on this operation.

5. Use a moderate proportion of alkali (not more than 1 part soda ash or its equivalent to 2 parts soap by weight) to assist the soap in the pre-scour.

6. Use a good low-titer soap for both pre-scour and boil-off.

In the two-bath process, rinsing causes no trouble unless hard water is used. In the single-bath process, it is the point at which most of the trouble from oil spotting occurs. Several rinses with a low water level (about 15 in.) are preferable to a few high or overflowing rinses from the standpoint of flushing out emulsified oil and dirt. Low rinses are also helpful in overcoming the ill effects of hard water. In the latter case, small additions of alkali will partially soften the water and materially assist rinsing. Soda ash and trisodium phosphate are effective and harmless to the silk in the proportion of 1 oz. per grain of hardness per 100 gal. of water.

More careful attention to maintaining good washing conditions during the boil-off and effective rinsing conditions afterward will do much to overcome many difficulties in hosiery degumming and dyeing.

The accompanying formulas cover the double-bath process, the single-bath process, and the single-bath process with pre-scour. Variations are given for producing the three general types of hosiery finish. These formulas represent average conditions and will require some modification to suit various local conditions. They will serve as a starting basis, which will quickly lead to final specifications for efficient operations. The percentages of soap are based on light- or medium-weight tram. Increases of 2% or 3% soap will probably have to be made for heavier trams, grenadine, or crêpe hose. All percentages refer to the weight of hose.

These hosiery degumming formulas are based on the use of commercial sodium oleate in dry, flaked form, containing 92% or more real soap. The 15-in. rinse level recommended is based on a cylinder diameter of about 42 in; rinse levels in proportion should be used in smaller machines.

American women are definitely committed to the wearing of silk hosiery. However, they advance constant and justified complaints against the tendency of present-day hose to develop runs. This problem is one of the most serious the hosiery industry has to solve. Its solution lies largely in the selection of raw silk, care and skill in manufacturing, and the methods and materials of dyeing and finishing. Good degumming and dyeing methods with wisely selected materials will preserve for the customer's benefit and appreciation any good qualities, including resistance to breakage and runs, which may have been built into the hose.

Formulas for Degumming Silk Hosiery

1. The Double-Bath Process

This formula will produce hose with the full scroop finish.

Boil-off bath	10% to 12% flaked sodium oleate. Boil for 40 min.
Rinses	Three with 15-in. water levels. Temperature, 160 to 180° F. Run 5 min. each.
Dyebath	Conditions as desirable or necessary.

2. The Single-Bath Process

a. Formula for full scroop finish.

Boil-off and dyebath	10% to 12% flaked sodium oleate. Boil 10 min., then add dyestuff. Continue boiling and add salt if and when necessary. Boil until shade is obtained.
Rinses	Three with 15-in. levels at 140 to 160° F. Run 5 min. each. One high rinse with cold water to cool load.

b. Formula for soft, rag-like finish.

Boil-off and dyebath	8% to 9% flaked sodium oleate. Boil 10 min., then add dyestuff. Continue boiling and add salt if and when necessary. Boil until shade is obtained.
Rinses	Three with 15-in. levels, adding luke-warm water. Run 5 min. each. One high rinse with cold water to cool load.

c. Formula for crisp, wiry finish.

Boil-off and dyebath	6% to 7% flaked sodium oleate. Boil 10 min., then add dyestuff. Continue boiling and add salt if and when necessary. Boil until shade is obtained.
Rinses	Two with 15-in. levels, adding luke-warm water. Run 5 min. each. One high rinse with cold water to cool load.

3. The Single-Bath Process with Pre-scour

a. Formula for full scroop finish.

Pre-scour	4% flaked sodium oleate, 2% soda ash. Temperature 160-180° F. Run 15 min. and discharge.
Boil-off and dyebath	6% flaked sodium oleate. Boil 10 min., then add dyestuff. Continue boiling and add salt if and when necessary. Boil until shade is obtained.
Rinses	Three with 15-in. levels, at 140° to 160° F. Run 5 min. each. One high rinse with cold water to cool load.

b. Formula for soft, rag-like finish.

Pre-scour	3% flaked sodium oleate, 1% soda ash. Temperature 160 to 180° F. Run 15 min. and discharge.
Boil-off and dyebath	4% to 5% flaked sodium oleate. Boil 10 min., then add dyestuff. Continue boiling and add salt if and when necessary. Boil until shade is obtained.
Rinses	Three with 15-in. levels, adding lukewarm water. Run 5 min. each One high rinse with cold water to cool load.

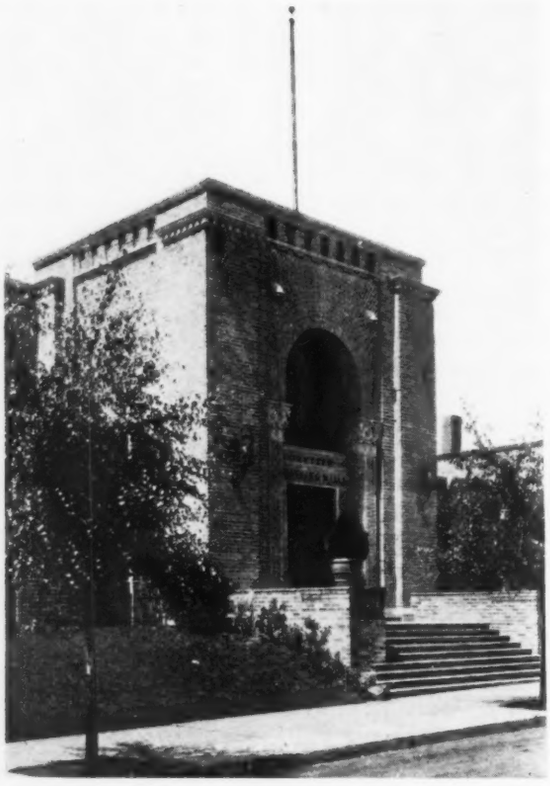
c. Formula for crisp, wiry finish.

Pre-scour	3% flaked sodium oleate, 1% soda ash. Temperature 160 to 180° F. Run 15 min. and discharge.
Boil-off and dyebath	3% to 4% flaked sodium oleate. Boil 10 min., then add dyestuff. Continue boiling and add salt if and when necessary. Boil until shade is obtained.
Rinses	Two with 15-in. levels, adding luke-warm water. Run 5 min. each. One high rinse with cold water to cool load.

Individual Efficiency

INCREASED BY WELL-ROUNDED MANAGEMENT POLICY AT JANTZEN KNITTING MILLS

By Leonard H. Delano



EXCELLENT working conditions plus an effective production-control system have proved particularly effective in increasing individual and departmental efficiency at the Jantzen Knitting Mills, Portland, Ore. When it is realized that the productivity per operative for a given unit of time increased from 1503 suits in 1922 to 4100 in 1930, it is evident that marked advances have been made.

The plant itself is of one-story construction, with an unusually large amount of window space and special lighting effects. Of a total of 114,000 sq.ft. of floor space, 33⅓% is employed for actual production, 18% for shipping, 40⅔% for storage, and 8% for administration and general office work. When the mill was first built, the production department was housed in the same building with the shipping department and certain elements of the office organization. The building was later cleared of departments which did not have to do with direct production, and the machines were placed in progressive order throughout the building. This did away with crowding and located individual and collective units where they afford maximum production. As a result production per operator increased immediately.

Steaming and pressing machines are located in logical sequence between the spooling and knitting department and the cutting and sewing room. No walls prevent spread of light; rather, wire partitions are used.

Soon after the other phases of work had been moved from the production plant, night work became an important feature of the Jantzen program in order to keep up with the sales department. Engineers of the Portland Electric Power Co. were called in to install a lighting system which would meet the needs of the night shift. Careful, speedy work necessitated a non-glaring, but sufficient supply of light. Lighting capacity was stepped up with 20 to 50 foot-candle lights in various parts of the mill. In the stitching room, lights providing 45 to 50 foot-candles were installed. This further helped to step up individual productivity.

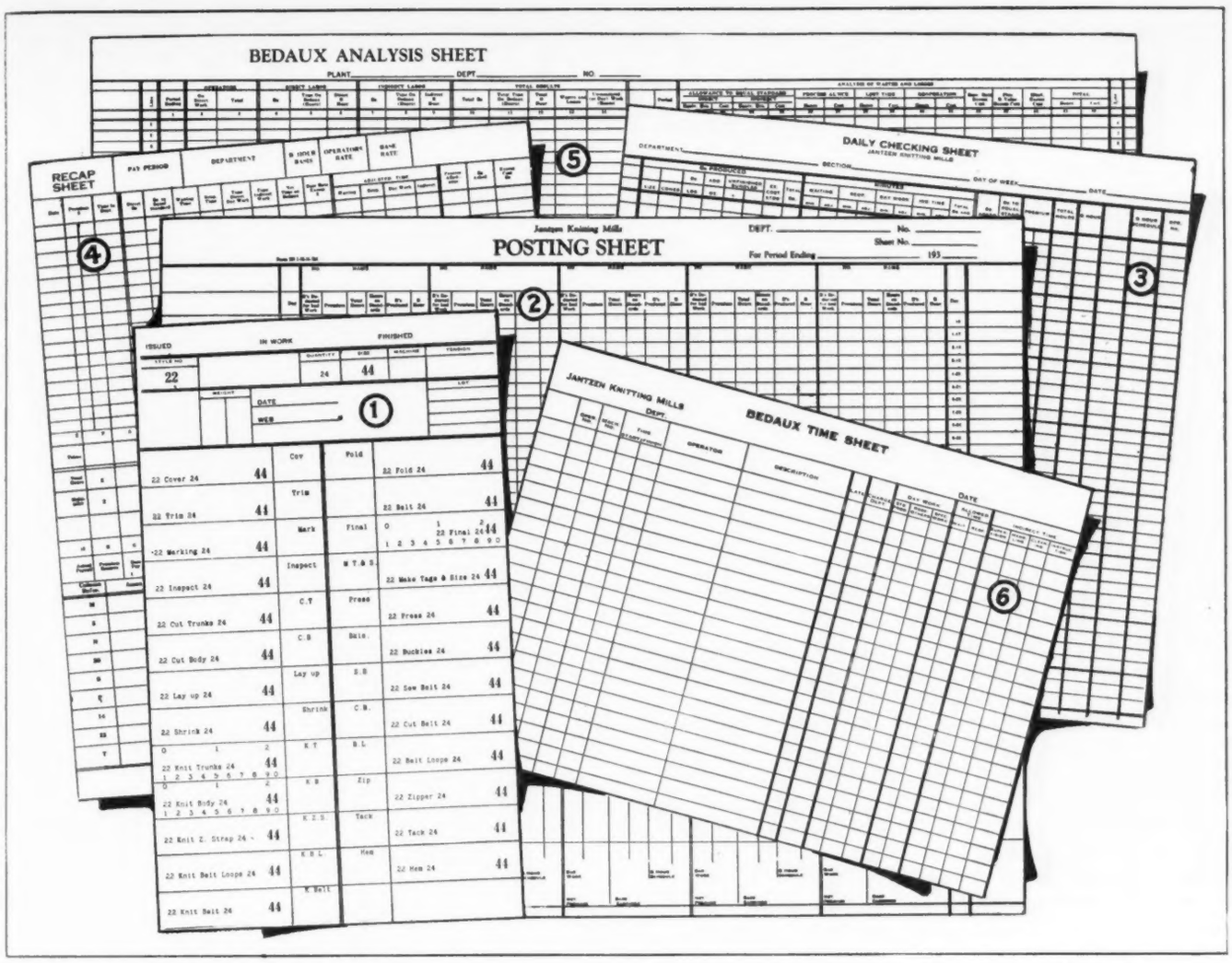
The clerical and general office force, which is housed in a modern administration building, utilizes the latest developments in speed and efficiency promoting equipment. An air-conditioning system installed in the administration building makes for good working conditions.

The personnel department has given much thought to the selection of employees. In normal times about 700 persons per shift (most of whom are women) are employed. A listing of all workers and candidates for work is kept, and records made of the individual capacity of employees. Transfer of an operator from one department or type of work to another has, in some cases, resulted in increased individual efficiency.

Baseball and basketball teams have been organized, and provisions made for swimming and other recreational activities. Health and safety of employees are safeguarded by a hospital association contract which covers chronic cases and by a dispensary in the building with a nurse in charge. Group life insurance is provided. Employees are given a two-weeks' vacation with pay. The vacation period is in August; and if possible, all vacations occur at the same time.

Application of a production-control plan, the Bedaux system has further helped in improving individual efficiency, according to the office of John A. Zehntbauer, president. Previously, payment by piece work was made to operators. This was changed to a bonus plan. Under this system, a minimum wage guarantee is made to each employee, and an opportunity afforded for earning considerably greater than the minimum. The standard capacity per operator per unit of time is established, and any production over the standard is paid for at a premium wage. In the case of workers whose jobs have to do with the tangible and direct phases of production, 25% is deducted from their premium to apply on a reserve for the indirect workers whose duties are less tangible. Departmental premiums for the sewing, cutting and other departments are also provided from this reserve, heads of departments receiving this form of bonus.

Six record sheets are used for individual and departmental records. These are the work order, posting sheet,



Group of forms used by Jantzen management—1. Work order. 2. Posting sheet. 3. Daily checking sheet. 4. Recap sheet. 5. Analysis sheet. 6. Time sheet.

daily checking sheet, recap sheet, analysis sheet, and time sheet.

The work order is shown in Fig. 1. Each operator cuts her coupon from this work order as a means of obtaining credit for the work performed. Her number is stamped in the square opposite the coupon cut. This serves as a means of tracing progress of the bundle and permits defective workmanship to be returned to the correct operator. The upper portion of the order is used by the production department in keeping production records.

The posting sheet (Fig. 2) is kept as a permanent payroll record. It is posted daily, so that operators may check their hours and premium earned. Entries are copied from the daily checking ticket.

The daily checking sheet (Fig. 3) is employed to record the production of operators and time distribution and to serve as a work sheet for operators' performance. Coupons cut from work orders are checked and Bedaux standards applied. Time entries are noted and transferred from the time sheet to the checking ticket. The total "B's" and minutes from coupons and time sheets are added to provide the total operator credit. Totals of necessary columns are transferred to the recap sheet. "B" hours and premium are copied from this sheet onto the posting sheet. ["B" is the standard production which should be obtained on any job in one minute by reasonable effort, without fatigue, and with rest and normal delay. Thus, 60 "B's" is the standard production per hour. A bonus is paid when production exceeds the standard.]

The recap sheet (Fig. 4) is used to summarize time and cost details from the checking tickets for the analysis sheet. Each line of the upper half represents one day's performance as copied from the checking ticket. The lower half of this sheet is used in calculating indirect and day-work time, cost of which is entered on the analysis sheet. The amounts entered and identified by the reference column number are transferred directly to the column number on the analysis sheet.

The analysis sheet (Fig. 5) is designed to give supervisors and superintendents an accurate picture of the effectiveness of each department during the pay period, including time and money utilization of both direct and indirect labor. The top half of the sheet shows a summary of the "B's" and hours, and the lower half gives a similar analysis in dollars and cents. An analysis is made in the right upper portion of all labor wastes and losses.

The time sheet (Fig. 6) is used to record all time work or work not on standards. The time is divided into three main groups, as shown. The bottom of the sheet is usually employed for listing all operators and the hours worked. Time is recorded by the supervisor and sent to the payroll department for calculating operator's performance.

Licker-In Speed

SOME FACTORS AND A FORMULA

By Charles A. Weston

ITEMS that should control the speed of a licker-in include the amount of cleaning done previous to the card and picker, the grade of cotton, the staple, the angle of the mote knives, and the type of licker-in screen.

Individuals look at the licker-in from different viewpoints, due in many cases to local conditions. For example, a mill which has insufficient opening and cleaning equipment has to use the card as a means of providing additional opening and cleaning and calls upon the licker-in to do most of this. An individual in one mill desires considerable fly under the licker-in, believing that it is better to take it out there than to have it come out later and make spots or slugs in the work. Others, we believe more correctly, look upon the licker-in as (1) a means of separating the sheet into small tufts or separating tufts into smaller tufts; (2) as a means of removing only the heavy particles that are unavoidably in the lap after picking, such as sand, leaf, hulls, seeds, and immature cotton; (3) as a means of prolonging the life of card clothing; and finally (4) as a means of prolonging the periods between strippings.

In other words, many mills are using the card, and have been using it for many years—especially the licker-in section, consisting of the feed plate and feed roll, licker-in, mote knives, and licker-in screen—for cleaning and opening.

In an article by Horace Spibey (TEXTILE WORLD, December, 1932) was described an experiment made at the College of Technology, Manchester, England, which showed that the critical licker-in speed lies between 694 and 845 r.p.m., or a ratio between cylinder and licker-in of 1.28/1 to 1.05/1. This test was made with Sakellaridis; and the fiber lengths, mean and most frequent, were .88 and 1.17 in., respectively. This would represent a staple of approximately 1½ in. A question this article raises is, can this high licker-in speed be used equally well on long and short cotton? The answer, based on a number of experiments made in mills in this country, is "Yes."

One experiment made in a Southern cotton mill showed a better-breaking yarn and a cleaner yarn with 900 r.p.m. at the licker-in than with 450 r.p.m.

Another organization made a number of experiments on the relation of licker-in speed to doffer speed to determine whether the licker-in speed should be increased and the doffer left as is, providing better and cleaner sliver is desired, or whether the licker-in speed should be left alone and the doffer speed decreased.

With a decrease in doffer speed, the production is decreased. With an increase in licker-in speed, without any change in screens, the amount of waste increases at the licker-in section, but decreases in other sections; although it must also be mentioned that, with a decrease in doffer speed, waste is increased at the licker-in.

It appears from the experiments made that 250 ft. of licker-in to each inch of lap fed is satisfactory—also that increase in cylinder speed allows a higher licker-in speed. A satisfactory ratio between cylinder and licker-in must be maintained to allow the cotton to travel properly between the licker-in and cylinder.

It cannot be correctly stated that licker-in speed should never be over 900 r.p.m., but it can be truthfully said that 450 r.p.m. and lower speeds are not efficient in many instances, possibly in most instances. The licker-in appears to be limited only in that it will have to have a surface speed slightly less than that of the cylinder. If the cylinder speed is extremely high, there may possibly be the relation of the doffer to the cylinder and flats to be taken into consideration.

Doffer-Speed Relationship

An interesting series of tests has been made employing the same licker-in speed, but two different doffer speeds, one twice as much as the other. It was found that in both cases after 1½ hr. of running the cylinder had absorbed a normal load. In the case of the higher doffer speed, this was followed by a 1½-hr. period of very little loading. After this second period, there was a forced loading (matting). With the low doffer speed there was, after the first 1½ hr., only a gradual increase in the load up to 6 hr. of running. The test showed that variations in doffer speed may require changes in licker-in speed.

It therefore appears that, so far as the product of the card is concerned, licker-in speeds above 450 and up to 900 can be used satisfactorily on long- and short-staple cottons if a satisfactory ratio between cylinder and licker-in is maintained. The following sentence from Mr. Spibey's article is, however, important: "It is clear that higher licker-in speeds are accompanied by higher costs, largely owing to the loss of good cotton in the licker-in fly." This would indicate that any radical increasing of licker-in speed should be undertaken with caution.

It would be safer, at least until further research has been conducted, to employ as a guide the following formula recently developed by Saco-Lowell shops after careful study of all factors:

$$\text{R.p.m. of licker-in} = \frac{\text{Production in grains per min.}}{2.75}$$

"We have found by experience," states a recent issue of the Saco-Lowell *Bulletin*, "that for best results the weight of stock per running yard of licker-in surface should be approximately 3.5 grains. In this formula 2.75 represents the grains of stock around the circumference of a 9-in. licker-in which corresponds to 3.5 grains per 1 yd. of surface. It is therefore a constant.

"As an example of the use of this rule, the production of a card, making a 50-grain sliver, at 10 r.p.m. of the doffer, is 109 lb. per 10 hr. This is equivalent to $109 \times 7000 = 763{,}000$ grains per 10 hr., or $763{,}000 \div 600 = 1271.67$ grains per minute. Substituting this value into the formula, $1271.67 \div 2.75 = 462$ r.p.m. of licker-in. In any case, however, the speed should not exceed 650 r.p.m., regardless of what the formula may give in certain instances.

"This rule, of course, is not infallible, being influenced by the length of staple, draft, etc., but may be used as a basis or guide. . . . It has been found important to know the rate of feed on the card."

Napping-Room Air

RE-CIRCULATION SYSTEM INSTALLED BY PEPPERELL

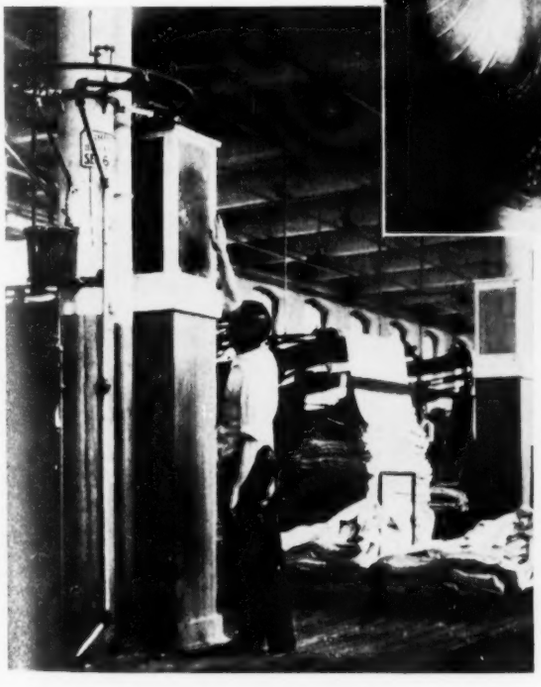
By Francis A. Westbrook, M. E.
Consulting Engineer

IN WINTER months it has been something of a problem in northern climates to keep napping rooms warm, and at the same time, free from disturbing air currents. This is due to the fact that it is necessary to maintain an exhaust under napping machines which draw off large quantities of air from the napping room. However, at the Biddeford, Me., plant of the Pepperell Mfg. Co., this difficulty has been overcome by arranging for the return of the air after it has passed through a condenser and dust-collecting room. The motor-driven exhaust fans and condenser are necessary in any event, and only a small amount of additional equipment is needed.

The air is returned to the napping room with only a very small lowering of temperature. It enters the room through the flues shown in Fig. 1, and tends to equalize the withdrawal at the napping machines, both as to temperature and draft.

Six large blowers have been placed in the basement of the building. These blowers are arranged in pairs, as shown in Fig. 2, each pair being driven by a 40-hp. squirrel-cage motor. Since the blowers are in rather an inaccessible location, the starting compensators have been mounted on the wall near the entrance, as shown in Fig. 3. The mounting consists of a steel framework made in the company's machine shop.

The service cables come in through the brick wall in a metal conduit from the main feeder circuit. At the top of the group of three compensators are the fuse boxes where the wires are first terminated. Below these are the overload relays, under which are the starting compensators with the control handles. The motor leads are run from the bottom of the compensators in a steel conduit down the wall and under the floor to the motors. Rubber-covered and double-braided conductors are used for this purpose.



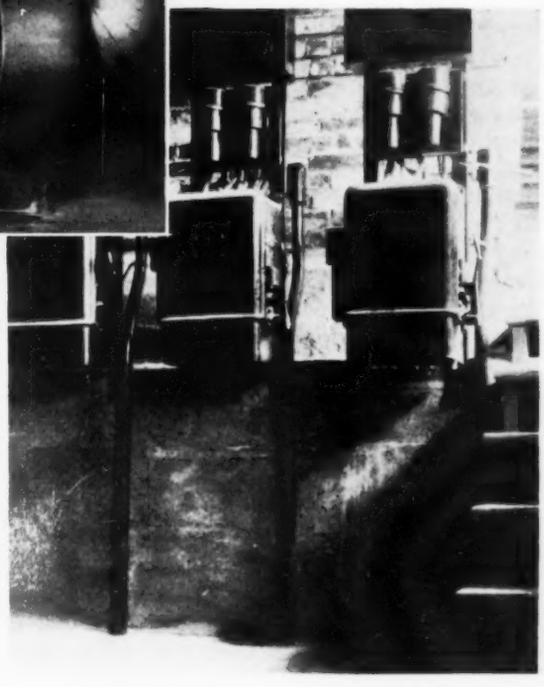
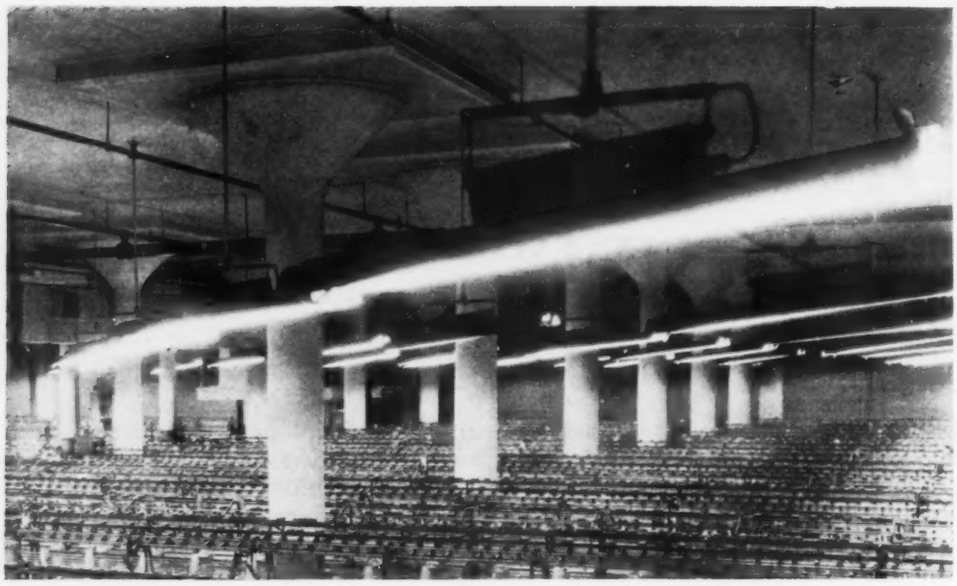


Fig. 1. (left) Flues through which recirculated air enters napping room.

Fig. 2. (above) Blowers employed in air re-circulation system at Pepperell Mfg. Co.

Fig. 3. (right) Starting compensators are mounted in convenient location.



Hygienic Lighting

A RECENT INNOVATION IN TEXTILE-MILL ILLUMINATION

THE growing popular appreciation of sunlight as a health-building medium has in recent years extended its influence to industrial plants. The modern textile mill is designed to permit the maximum amount of desirable natural lighting through increased sash area, larger roof monitors, and brightly painted walls and ceilings. It is not surprising, therefore, that the textile industry has been among the first to install lighting equipment, not only to supply correct illumination, but also to furnish ultra-violet radiation for the benefit of operatives working under the lamps.

Many common colds and respiratory diseases are believed by numerous health authorities to be caused partially, at least, by insufficient exposure of the body to ultra-violet radiation. A survey by the U.S. Public Health Service disclosed the fact that colds caused a time loss equivalent to 1.4 days per year for every man on the payroll and 2.1 days for every female employee. Any preventive measure, such as that claimed for the dual-purpose health lamp, obviously will tend to increase the efficiency of the worker, reduce the amount of time lost from work, and result in substantial savings for the manufacturer.

Dual-Purpose Tube

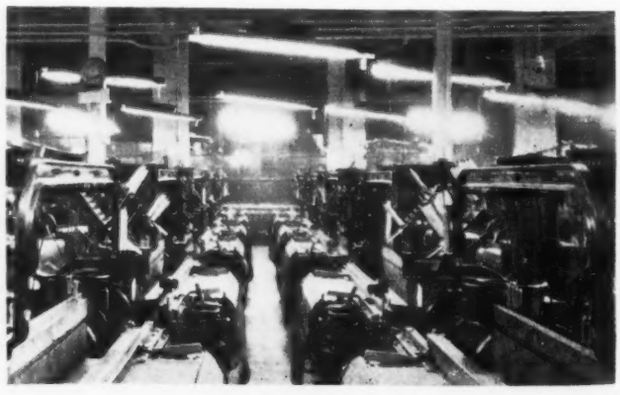
Recognizing this opportunity for electrical therapeutics in industry, the General Electric Vapor Lamp Co., Hoboken, N. J., after comprehensive tests, about four years ago introduced a new glass tube for Cooper Hewitt mercury-vapor lamps which permits the transmission of ultra-violet rays of about the same intensity as that present in average June sunlight. This effect is accomplished by a special composition of glass, containing the proper proportion of quartz, which transmits ultra-violet in an amount and an intensity of about one-twentieth of that transmitted by the ordinary ultra-violet lamp designed for sun-baths in the home. This intensity was found to be desirable because the industrial lamp is used for purposes of illumination during the working day (or shift), or on an average about 20 times as long as the home ultra-violet lamp is used for a sun-bath.

Mill Installations

The new dual-purpose health tube has been adopted by several large knitting and weaving mills. Some of the installations in the South, for instance, consist of more than 200 lamps. Among the larger mills in which these tubes are used are: Hanes Hosiery Mills Co., Winston-Salem, N. C.; Adams-Millis Corp., High Point, N. C.; Morganton (N. C.) Full-Fashioned Hosiery Co.; Pilot Full-Fashioned Hosiery Mills, Valdese, N. C.; and Southern Silk Mills, Kernersville, N. C.

Because of the low intensity of the ultra-violet transmission through the new health tubes, and because of the overhead position of the lamps under normal working conditions, according to engineers of the General Electric Vapor Lamp Co., the light will not harm the eyes, and goggles are not necessary as a protection against the ultra-violet rays.

Actual results under normal factory conditions during the last three or four years, while extremely difficult to express in figures, due to the great variation in the health of individuals and groups of workers, are felt to be beneficial to the operatives. Medical science has revealed that only a light tanning is necessary in order to produce the desired therapeutic effect; and there is sufficient evidence that workers have shown an appreciable amount of tanning following the installation of the dual-purpose tubes.



Illustrations show typical installations

Rayon "Triple Sheers"

MUST HAVE REQUIRED FLAT APPEARANCE

By James Chittick

THE term "sheer," when applied to fabrics, denotes a light, flat, and somewhat open construction; and there are always many such on the market. Among those that have recently had a considerable vogue are what are known colloquially as "triple sheers." These are usually all-silk fabrications, in which the warp threads and filling threads have each been composed of three individual threads combined with crêpe twist. The fabrics are in plain weave and made after the manner of a crêpe georgette, both right and left twist being used. The warp threads are arranged two ends of right-hand twist alternating with two ends of left-hand, and the filling is woven in similarly. The silk employed is more generally the 13/15-denier size, but sometimes 20/22-denier is used.

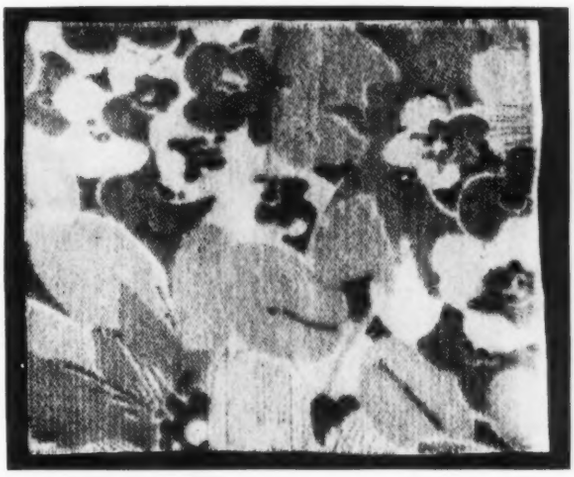
To get the properly flat effect desired, there must be a suitable proportioning of picks and ends per inch, as well as of the sizes of the raw materials used; and special care must be exercised in the finishing with respect to shrinkage and other matters. Some concerns have taken ordinary three-thread crêpes georgette, have had them heavily stretched out in the finishing to flatten them, and have offered them on the market as triple sheers. While in one sense they are, yet they are by no means what the customer has a right to expect.

In making goods of simliar character from rayon, it is obvious that if three threads of the more ordinary sizes were used for this purpose, the resulting threads would be too coarse. Therefore, in making these fabrics, single rayon threads will be employed, these perhaps having a bulk or size commensurate with that of a three- or four-thread silk yarn composed of 20/22-denier raw silk.

It is desirable to avoid the shiny varieties of rayon, as they would not so well simulate the aspect of the triple-sheer silk fabrics; and therefore a less lustrous yarn should be employed. Desirable characteristics are extreme fineness of filament, softness, flexibility, and kindliness of touch.

Some interesting examples of these fabrics are before the writer. These have quite a smooth face; are flat in appearance; have a soft, silky touch; drape admirably; and have a subdued luster. Where the filling is not crêpe-twisted, this yarn will show with a slight glitter when the fabrics are viewed in certain positions. An examination of these cloths, all printed, discloses the following facts:

In one, the finished cloth averages 115 warp ends and 74 filling picks per inch. When counted under stretch, to reproduce the condition of the cloth as it was woven, the count is 100x68. The reed width will be 46 to 46½ in., to finish about 40 in., with a shortening in finishing of about 8%. Another, in the finished state, has an average count of 115 warp ends and 78 picks per inch. This counts at stretch 100x72, and will be 46 to 46½ in. in the loom. It shows also a run-up in length of about 8%. The warp in both is 75-denier, twisted 60/65 turns per inch. The filling is also 75-denier, but with only the ordinary twist. Usually such warps would be reeded two ends through each split of a 50-dent reed, with two ends of right-hand twist through one split and two ends of left-hand twist through the next; but this has been reeded 25/4, with two right-hand ends and two left-hand ends in each split. This reeding makes the weaving somewhat easier than if a 50-dent reed had been used, but in addition it imparts to the goods a narrow striped appearance which adds materially to their looks.



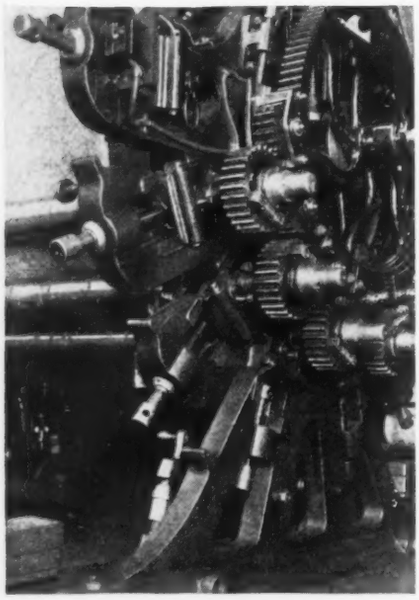
Rayon "triple sheer" showing vertical lines

Another construction, counted at stretch, shows a count of 90x68, with 100-denier yarn for the warp and filling, both twisted about 55 turns per inch. This has been reeded 45/2. Then there is one made with one warp end in a split, passed through a 52-dent reed, and woven with 72 picks per inch. In this the warp and filling are both 75-denier. The warp ends have been given 60 to 65 turns of twist to the inch, but the filling is not crêpe twisted. Another quality counts 104x72, as woven, both warp and filling being 75-denier. This has been reeded 52/2. Still another quality counts 112x72, reeded 28/4. In this the warp material is 65-denier; and the filling, 75-denier.

In all of these different constructions the width in the loom was from 45 to 46, or 46½ in., to finish 39 to 40 in. It may seem that, where the fillings are not crêpe twist, this would be an unusually wide reed width; but rayon yarns, when wet, have a considerable shrinking power in themselves.

Where crêpe twist is used for the filling, the face of the fabric cannot be expected to be quite so smooth; and in this respect manufacturers will govern themselves according to the requirements of the market. Needless to say, the manner in which the finishing is done will have a material effect upon the aspect of the cloth.

Cotton-Rayon Printing



MODIFICATION OF COTTON METHODS ESSENTIAL TO BEST RESULTS

By Ray Cottrell

◆ *In previous articles (July and August, 1933) the author has described the bleaching and dyeing of cotton-rayon piece goods. He now discusses the precautions which must be taken in printing these fabrics to insure sharpness of outline and maximum color yield.*

ALTHOUGH it has been customary in printing cotton fabrics with vat colors to sacrifice penetration and sharpness of line or contour for maximum color value, it usually is necessary in printing cotton-rayon goods to obtain the same degree of penetration and sharpness of outline demanded with silk fabrics. On the other hand, the printing of cotton-rayon goods with vat colors has become so highly competitive that color value is now a vital factor. Furthermore, printing pastes for this class of work must be capable of complete removal on washing or soaping, any residual starch or gum having a harshening or stiffening effect on these otherwise soft-handling fabrics. In printing cotton-rayon materials, certain modifications of the procedures ordinarily employed with all-cotton fabrics are necessary, therefore, if satisfactory results are to be obtained.

New Thickeners

Of particular importance in printing cotton-rayon fabrics is the preparation of the printing paste. In recent years a number of modified starches, gums, and prepared thickeners have been made available. Certain of these combine to a remarkable extent the requirements mentioned above, and they are finding increased use in the printing industry. One example is a specially prepared British gum which gives a higher color yield than the older types, and at the same time produces a free-flowing paste which has little tendency to gelatinize on contact with potassium carbonate.

To facilitate penetration of the printing paste a small percentage of certain swelling agents, such as glycerin, diethylene glycol, ethylene dithiodiglycol, etc., is often added to the printing paste. These substances have marked hygroscopic properties, however, and when the impregnated fabric is exposed to a humid atmosphere (such as prevails in the ager), they rapidly absorb moisture from the steam. Since this may lead to serious damage due to bleeding or flushing of the colors, it is essential to use steam which has a moisture content sufficient only to insure full development and brightness of shade.

If, on the other hand, the steam is too dry, these swelling agents cannot function as deliquescents, and their inclusion in printing paste is mere waste. Proper control of the moisture content of the ager is, therefore, of great importance.

Drying temperature is another factor which should not be overlooked. Thus, excessive heat on the drying cylinders, apart from its tendency to harshen rayon of all types, frequently results in poor discharges due to the decomposition of the hydrosulphite. It also leads to insufficient development of the color, due to a film of the latter being "baked" hard, and consequently offering considerable resistance to penetration by the steam in the ager.

Colloids in the nature of glue, gelatin, etc., are frequently included in printing pastes for cotton-rayon fabrics, in order to prevent flushing in discharge styles. In such cases, excessive heat in drying will cause an almost insoluble film of the glue or gelatin to cover the color paste and prevent the steam from penetrating to and developing the color.

Dyestuffs Employed

The same classes of dyestuffs used on all-cotton fabrics are employed on cotton-rayon goods; and with the modifications mentioned above, are applied in practically the same manner. Vat and naphthol colors are employed extensively for producing shades fast to light and washing; and particular mention should be made of a blue-red naphthol combination which has become popular on these mixture fabrics.

In producing this combination, the bleached goods are padded in a solution containing 12 lb. Naphthol AS-BS, 20 lb. sulphonated castor oil (50%), 20 lb. caustic soda solution (76° Tw.), and 5 lb. formaldehyde to 100 gal. of water. The goods are dried and printed with the following resist: 60 lb. Fast Scarlet GG salt, 260 lb. water, 500 lb. gum tragacanth thickener, 150 lb. alum, and 30 lb. sodium acetate.

The fabric is again dried and then padded with 14 lb. of Fast Blue Salt B to 100 gal. Speeds are arranged so that the goods are in this padding liquor for 10 to 15 seconds before squeezing and souring with 5½ lb. hydrochloric acid (32°Tw.) and 5 lb. tin crystals to 100 gal. of water. Finally the goods are thoroughly rinsed, soaped and rinsed. Use of the recently introduced Variamine Blue Salt in place of Blue Salt B simplifies the aftertreatment and enhances the brightness of the blue ground.

NEW PUBLICATIONS

DENHAM UNIVERSAL CODE FOR INDUSTRIAL COSTING AND PRICING; By Robert S. Denham; Published by the Denham Costfinding Co., Cleveland, Ohio. Price, $2.50.

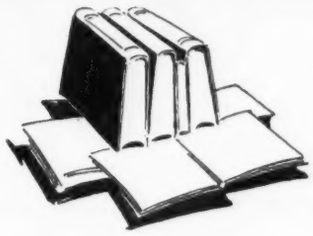
This publication outlines the cost-engineering principles and procedure sponsored by the author, and presents a tentative code of standards of practice for industrial costing and pricing. The purpose is not to describe in detail costfinding methods but to set forth the characteristics which should be incorporated in any costing plan.

DAVISON'S TEXTILE BLUE BOOK; Davison Publishing Co., New York; 1386 pages; Office edition, $7.50; Handy edition, $5.00.

The new edition of Davison's has been issued for its 68th year as of July, 1933. It contains the usual classification of cotton mills, woolen and worsted mills, silk mills, knitting mills, Canadian mills, Mexican mills, dyers and finishers, commission merchants, dealers, etc. Whereas corrections in lines from one edition to another usually average 20%, this edition averages 67%. It is stated that 9,403 separate textile plants are reported and 15,851 dealers listed.

A HANDBOOK OF NRA LAWS, REGULATIONS, INTERPRETATIONS, CODES; Federal Codes, Inc., New York; 412 pages; $4.50, including supplement service.

This represents an excellent job from the standpoint of prompt collection and publication of NRA material. It represents a compilation of statutes, executive



orders, regulations, official interpretations, decisions, approved codes, approved modifications of blanket code, and official statements relative to the NIRA and NRA. To enable the reader to keep abreast of the continual changes and additions expected, the publishers will issue, beginning Oct. 16, the "NRA Reporter"; a coupon entitling the purchaser of the handbook to this service to Dec. 31, 1933, is included in each copy.

Business Literature

Full-Fashioned Hosiery Machines. Louis Hirsch Textile Machines, Inc., New York. Handsome, interesting, and well-illustrated book commemorating Karl Lieberknicht's 60th anniversary. Features new "Complet" machine.

Print Works Equipment. P. H. McGiehan, 405 Lexington Ave., New York. Illustrated booklet showing printing machines, copper print rolls, printing machine blankets and other equipment offered by the McGiehan organization.

Lubrication. The Pure Oil Co., New York. Illustrated 50-page booklet on the lubrication of bearings of various types and under different conditions. Lubricants and bearing metals are discussed.

Filter. Hungerford & Terry, Inc., Clayton, N. J. Bulletin describing the Hungerford "air-water-wash" gravity filter.

Iron Pipe. The Central Foundry Co., New York, Booklet about cast iron pipe and fittings for water supply and distribution, fire protection and industrial installations.

Motor Drives. Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. Illustrated circular describing new line of splash-and-drip-proof motor drives.

Sanforizing. Byron G. Moon Co., New York, through its department, the Fashion Merchandising Bureau, is distributing to general managers of retail stores a broadside stressing the fact that the delivery of Sanforized-shrunk goods is a consumer service. This is tied in with NRA.

Twisting Machinery. The Atwood Machinery Co., Stonington, Conn. New publication, ***Atwood Twists,*** issued for users of winding and throwing equipment, carrying detailed and technical information, made its initial appearance with the August issue.

Valves. Jenkins Bros., New York. Complete 264-page catalog and data book on valves and valve layout, including information on metals used in making valves, and the services, pressures, temperatures and fluids for which valves are recommended.

Winders. Fidelity Machine Co., Philadelphia. Illustrated pamphlet showing complete line of Fidelity-Altemus winders for handling silk, rayon, cotton, worsted and combination yarns.

Card Room Machinery. Whitin Machine Works, Whitinsville, Mass. Illustrated booklet showing two models of roving frames, with details on the construction, operation and standard production of each type.

Sewing Machines. Willcox and Gibbs Sewing Machine Co., New York. Illustrated catalog showing different types of sewing machines for industrial use and describing various stitches and seams.

Photoelectric Relays. General Electric Co., Schenectady, N. Y. Booklet describing the design and application.

Schools. Clemson Agricultural College, has issued pictorial survey of its activities, including work of textile students in yarn manufacture, weaving, knitting, designing, and dyeing. Philadelphia Textile School in its 1933-1934 catalog gives description of courses of instruction in manufacture and marketing of textiles.

BUSINESS NEWS

Saco-Lowell Shops, Biddeford, Me., are erecting a foundry addition, 30x150 ft., steel construction to be provided with a crane runway for a 5-ton crane to be moved from the Newton foundry. The addition will be used for the heavier work, such as card cylinders, doffers, picker sides, etc.

Joseph Campbell Reed Co., Central Falls, R. I., has been incorporated and will manufacture reeds, occupying quarters in the former U. S. Cotton Co. plant at 27 Foundry St. Mr. Campbell was in charge of the reed department of Cocheco Division, Pacific Mills, and later with Salmon Falls Mfg. Co., Jencks Spinning Co. and Slater Yarn Co.

Alfred Heaton, author of the article "A Composite Worsted Mill" in the September TEXTILE WORLD, the first article of a series, has established himself as a consulting textile engineer with temporary headquarters at 320 West 84th St., New York. Mr. Heaton has had wide experience in the worsted business, acting in capacity of overseer and superintendent in a number of mills over a period of 20 years, with approximately two years in the research department of Saco-Lowell Shops.

Electric Machinery Mfg. Co., Minneapolis, Minn., is now represented in Atlanta and territory by George W. Gardner, 703 Bona Allen Bldg.

Major A. E. Carpenter, vice-president and general manager of E. F. Houghton & Co., Philadelphia, has been spending several weeks in England, inspecting his company's new plant in Manchester and conferring with his British representatives, Edgar Vaughan & Co., in Birmingham.

Joseph Turner & Co., New York, heavy chemicals has opened an office at 36 Exchange Pl., Providence, R. I., with Parke H. Masters as sales representative.

Clinton (Iowa) Corn Syrup Refining Co. has changed its name to Clinton Co., for reasons of brevity and convenience and because the former name was not fully descriptive of the company's products. Its subsidiary is now known as Clinton Sales Co., Inc. Byrd Miller, Morgan Building, Greenville, S. C., has been named as southern sales agent.

D. W. Haering & Co., Chicago, water consultants and makers of HOH water treatments have, opened a New York office at 1451 Broadway in charge of William Wright, district manager.

Gulf Refining Co. has appointed Geo. H. Wight as assistant district sales manager in charge of lubrication sales in New England with headquarters at 31 St. James Ave., Boston. Mr. Wight was formerly with the Vacuum Oil Co.

Louis Allis Co., Milwaukee, Wis., announces that Chas. F. Norton, formerly vice-president and general manager of Howell Electric Motors Co., has joined its organization in an executive sales capacity.

Kron Co., Bridgeport, Conn., has appointed the Mechanical Equipment Corp., New Orleans, La., as a distributor for its complete line of industrial scales.

Coppus Engineering Corp., Worcester, Mass., has appointed Frederick D. Rogers, 80 Federal St., Boston, to handle sales in Maine, New Hampshire, Vermont and that part of Massachusetts east of Worcester county, a territory formerly covered from the home office.

Joseph T. Ryerson & Son, iron and steel, Chicago, has appointed W. F. Kurfess, manager of the mill department of the firm, assistant vice-president. M. J. Hartigan succeeds Mr. Kurfess as manager of the mill department.

Holyoke Belting Co. has announced the appointment of Jack Harris, Spartanburg, S. C., as southern sales manager.

Rhode Island Ventilating & Humidifying Co. has announced the appointment of the Aldrich Machine Works, Greenwood, S. C., as southern sales representatives.

THIS DEPARTMENT—

offers a new subject for discussion each month and gives readers' comments on problems introduced in previous issues. The subject opened in August is closed and a summary of contributed ideas is given on opposite page. Overseers and others are invited to discuss the subject presented under the heading "A Talk on Efficiency Engineers," and other questions brought up in the super's talks. Letters accepted and published will be paid for without regard to length. Brevity is desirable.

Overseers'

A TALK ON EFFICIENCY

"BILL asked me to suggest a certain topic for discussion today," Superintendent Chase said with a smile, "so I suspect that he is all loaded with a lot of arguments. However, it's a good subject. What Bill wants to know is whether efficiency engineers, or systematizers, or whatever you want to call them, can do a better job if they are thoroughly acquainted with textile processes or if they are better off not knowing anything about our industry."

"As Pete isn't here today," young Hank spoke up, "I'll stick my neck out a bit and give you my ideas. I really believe that it is better to hire efficiency experts who aren't familiar with the textile industry. Such men are well grounded in general principles and they aren't all tied up with precedent. They can look at things with a fresh mind and will often suggest things that would never occur to a man who is so familiar with the textile industry that he takes things for granted. As I said before, such men know the principles, they have experience in other industries to help them and the fact that they may call a spinning frame a winder doesn't make the slightest bit of difference. The superintendent and overseers can supply all the 'practical' knowledge necessary."

"I must admit," Bill replied, "that I had some reason for bringing up this question. I have just received a letter from a friend

Allowing Time for Relaxation

Editor, Overseers' Round-Table:

I think it is a good plan to allow the workers a definite time for relaxation. Working as they are required to, at such high speed and under such high tension since mills began operating under the Code, it is essential to their health that they have these brief periods of rest.

I do not agree with Superintendent Chase, however, in his plan to flash a colored light for five minutes every half hour, during which time the workers are supposed to relax. I believe that this is entirely too much of a good thing and would curtail production. Neither do I agree with Bill, whose plan it is to allow the workers to take time off "when they are in the mood." The result of Bill's plan would be that some workers would be in the mood to rest more time than they were in the mood to work, and indiscriminate visiting and talking with other workers at any old time would seriously interfere with discipline and production.

In mills running five hours in the morning and three in the afternoon, as most mills are now doing, the writer's idea would be to allow two, ten-minute rest periods; one in the morning and one in the afternoon. This would allow the operatives sufficient time to really relax, enable them to get their full day's production and to finish the day fresher and in better physical condition than if they had worked the full time without these breaks.

A. O. M.

Editor Overseers' Round-Table:

It seems to me that a specially allotted recess for textile workers is not very practical. It does not seem advisable that cards or other productive equipment should be neglected or shut down for three minutes out of each hour. We have very few cases in the textile industry where such recess is necessary and I believe that most of these cases are found in the "sweatshops."

It seems reasonable that if a plant has help that has to be ruled in any such manner as with a green light more time will be wasted in watching for the bit of freedom than anyone could gain. Each overseer should know his help and the overseer should be responsible for hiring workers capable of relaxing without taxing the operation of machinery, which is more important to a going concern today than ever before.

R. A. ELLMS.

Editor, Overseers' Round-Table:

The mill so mentioned, paying higher wages than any other mill in the immediate vicinity and getting a higher degree of efficiency with the 5% allowance for relaxation, is exemplary as well as profitable to the mill management.

This same principle is in vogue in one of the chains of mills with which I have been personally in contact; yet the 5% allowance is not the fixed rule over the entire plant, but rather 12% is the plant average. The picker tenders are allowed 25% for rest and delay, and at other operations where an extra amount of exertion is required a wider variation is made. On one operation 5% is allowed due to the nature of the work not being as tiresome as some of the other work in the mill.

Discretion is to be exercised in a case of this type, and when so considered there is no humane person who will expect more than 90% of the operatives' time to be usurped in the attention of his work; this being inclusive of patrolling as well.

For example, of two mills that I have been recently in connection with, one expected every moment possible to be utilized on the job and a study I made of the production of fly frames over a period of a week, using extra help to do the doffing, showed these frames were averaging 63.6% of possible production, which is not an attractive figure. The other mill

Round-Table

ENGINEERS

of mine who is in a dyehouse and who wants to know why efficiency men aren't employed who at least know a dyebeck from a kier. Now my idea is that it is foolish to employ engineers who aren't familiar with the textile industry. Granted that outsiders, being intelligent men, muddle through in the end, the fact of the matter is that they waste an awful lot of time finding out what it is all about. An engineer who specializes in textiles doesn't have to spend days learning the ropes and, what is more, he knows that there are many things that look fine in theory but simply can't be worked out in practice and he avoids these pitfalls. My friend relates an incident that is humorous, but which is to the point. It seems that an executive, newly imported to straighten out a failing print concern, came across an item which showed a charge of $300 for doctor's blades. 'Great Scott,' he shouted, 'these doctors must supply their own instruments for accident cases.' "

▶ **Do *you* believe that efficiency engineers should be familiar with manufacturing details in the textile industry?**

allows 10% of the time for relaxation, does not use any extra help for doffing, and attains an average of 72.5% of possible production. F. L. Byrd.

Editor, Overseers' Round-Table:

I insist that a brief period of time, say a few minutes, should be allowed for relaxation. It's an old, trite saying that "all work and no play makes Jack a dull boy." And it's so in the mill, the shop and the factory.

No matter if the men are being paid high wages there should be time for relaxation, as I have said. There is real merit in such a proposition. I feel that if such time is allowed better results will be had in the mill and the employees will realize that the boss is willing to cooperate—thereby developing a better feeling between the company and its employees. I would suggest either three or four minutes each hour, or 20 to 25 minutes in the seven or eight hours worked as the case may be. W. B. Webb.

Editor, Overseers' Round-Table:

Whether relaxation periods should be at the discretion of the men or be set by the management is no longer an open question nor a matter of opinion. The classic experiment of Taylor with men unloading and loading pig iron and ore, and subsequent studies of the same nature, have made that question a closed issue. Fatigue is an illusive thing, a man after half an hour of steady application may feel tired, and yet it may be a condition of the mind altogether. The duration of the rest periods and their interval should be set by the management after a careful study. N. T. Pef.

SUMMARY

ALLOWING TIME FOR RELAXATION—Approximately 83% of the replies were in favor of allowing the workers definite periods for relaxation. Under such a plan, it was stated, the workers did not become as fatigued, production was higher and indiscriminate loitering was avoided. There was no unanimity of opinion on the arrangement of the periods of relaxation; the majority favoring working out the plan according to conditions in each department, while a minority favored either a few minutes each hour or a longer period twice a day. The 17% of contributors who did not favor definite relaxation periods brought forward the arguments that workers did not like to be ruled by a clock in such a manner and that production would be interrupted.

▼

Editor, Overseers' Round-Table:

We are now living in a fast-moving age and what once would have been considered silly or radical is now merely a matter of good business. The idea of rest periods for the workers is one instance.

I agree with Pete that every one needs a little relaxation and it is far better for the management to set aside a definite period than to allow the workers to relax every time the notion strikes them.

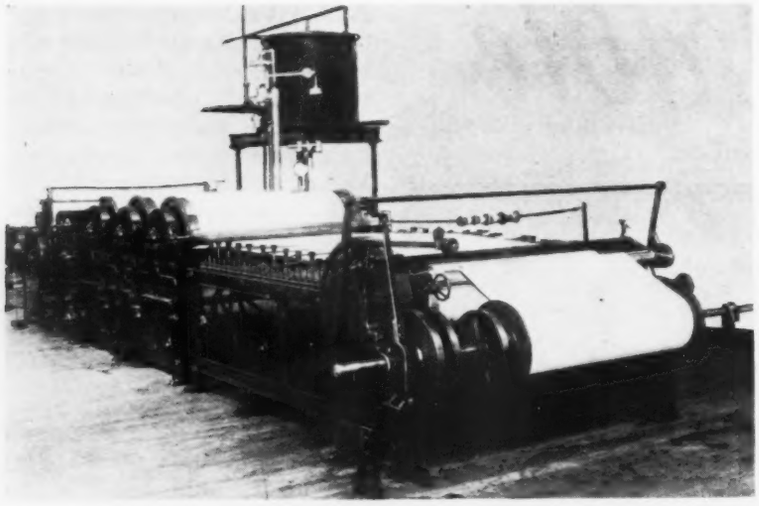
From a long experience, covering many different phases of work, I heartily endorse the idea and believe there is real merit in it. Of course where this plan is adopted there should be an understanding that the workers should be busy the rest of the time and that there should be no visiting or killing time except during the rest period. Bob.

Editor Overseers' Round-Table:

From my personal experience and observation I have reached the conclusion that there is very little merit in allowing the workers any definite time for relaxation as they will take advantage of this, and then will stop just the same when the notion strikes them for a bit of gossip or visiting with other employees.

I am inclined to agree with Bill that "the workers should be allowed to relax when they feel it is necessary and not simply because a green light flashes on." No grown man wants to be treated like a school child nor feel that his personal affairs are controlled by a clock.

If a man has been working hard and everything is working smoothly, and a man catches up and has nothing do to for a few minutes, there is nothing wrong or unethical in him exchanging a few words with his pals. I am under the impression that this will prove more satisfactory than setting aside a definite time for relaxation. W. D. B.



Rayon Slasher

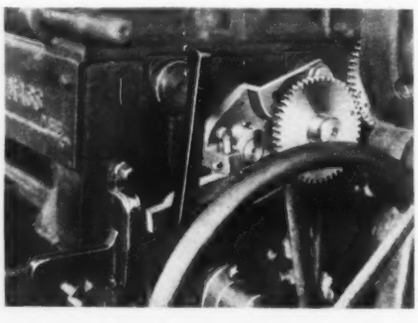
COCKER Machine & Foundry Co., Gastonia, N. C., has developed and placed in operation a new slasher for handling synthetic yarns. The machine is available in two arrangements: one designed for working in connection with the cotton system of slashing, and the other adapted for the silk system of sizing from a single beam made on a horizontal type warper.

The complete machine for slashing by the cotton system consists of four units: a creel unit, a size box unit, a five-cylinder drying unit, and a head end unit. The complete arrangement for the silk system of sizing consists of two units: the quetsch roll section unit, and the drying-beaming section unit. The size box for the cotton method machine is made of cast iron, lined with tinned copper with curved bottom to permit easy cleaning. The size box casting has a cored steam jacket and is equipped with perforated pipe for thinning the sizing solution and for boiling purposes in the cleaning of the size box. The size box immersion roller is easily adjustable to the desired operating position. The mounting for the top quetsch rolls is so designed that they may be readily raised and lowered.

The new slasher is equipped with motor drive complete, or furnished with belt drives, if desired. All rolls, drying cylinders, etc., are mounted in self-aligning ball bearings, while the drying cylinders are driven through an endless roller chain running on cut sprockets. V-belt drives are used between the two-speed main jack-shaft, while operating speeds are controlled by variable speed transmissions of the ball-bearing type. All moving parts are equipped for Alemite lubrication.

The slasher is equipped with instruments to show the amount of stretch caused by the sizing operation and for indicating the total yardage of warps being slashed. Arrangement has been made in the design of the machine to control the tension on yarn at all points. Section beam creels for the cotton system arrangement are constructed of cast iron and steel, adequately reinforced, and have roller bearings for beam journals carried in adjustable bearing stands. Cast iron frames on which various parts are mounted have adjustable feet for leveling and aligning the slasher.

In order to facilitate the control of operating speeds for various deniers and number of ends in the warps, indicating dials are provided in connection with the variable-speed transmissions, while indicators are also used in connection with the valves for admitting steam to the different drying cylinders. All cylinders and size boxes are equipped with individual traps of the thermic unit type, and steam connections to cylinders are made through rotary packless joints. A syphon system is employed for removing condensate from the cylinders. The machines are furnished complete with motors, expansion comb, cut markers, clocks, and all steam equipment, including temperature controls for cylinders and size box, if desired. This machine is said to give economical operation with a minimum of waste and lost time due to shutdowns for repairs.

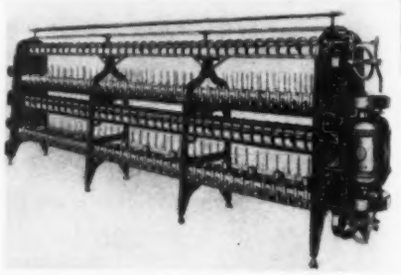


Positive Knock-Off For Old Pickers

THE principle of the "hunting-tooth" mechanism, similar to that on new pickers, is used in the design of a positive knock-off for old-model pickers, recently developed by the Saco-Lowell Shops, Boston, Mass. This improved knock-off, which is said to be absolutely positive and easily applied, is intended primarily for replacement of the worm and worm-gear type knock-off which were used on pickers built prior to 1927.

The manufacturer states that, with the positive knock-off, the entire motion is accomplished within $\frac{1}{8}$-in. of surface movement of the calender roll, this amount being the maximum variation possible in the length of the lap. The accompanying illustration shows the knock-off mechanism, with the gear cover removed, just after it has operated. The "hunting teeth" are fastened to the back sides of their respective gears, while the gears remain in mesh at all times, even during the actual operation of the knock-off. The gear shown at the left is a change gear, arranged so that one tooth is the equivalent of 1-yd. length of lap. The mechanism is driven by the bottom calender roll which, being positively driven, insures a positive drive of the knock-off.

The new positive knock-off is easy to install, requiring no drilling. The large gear on the plain calender roll is simply removed, the new knock-off gears applied, and the stud shaft bearing replaced with a new base requiring no new bolts. The device is said to be rugged in construction, with large, strong gears and a heavy base.



Silk-Type Twister With Oilless Bearings

THE Atwood Machine Co., Stonington, Conn., has introduced a "Monarch" twister completely equipped with oilless bearings at every point where bearing lubrication has heretofore threatened the cleanliness of the product. The oilless bearings are intended to prevent trouble from careless and excessive oiling, which results in oil oozing out of the bearings, forming in drops, and then dripping down on moving parts to be spattered onto the yarn being twisted. This new development is claimed to remove the principal cause of damage from oil spots.

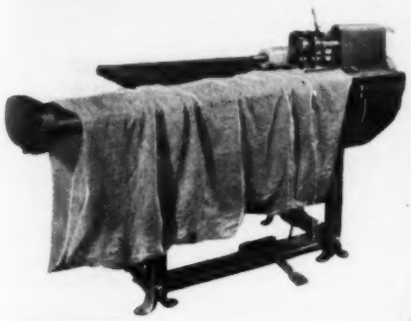
The standard double-deck oilless "Monarch" twister is provided with 96 oilless bearings. All the shaft hangers are so equipped, thus eliminating the cause of oil dripping down on spindles or on the cork-covered take-up rolls. On the motor end, the take-up shaft bearings, traverse slide, gear bearings, cam rolls, traverse levers, and the traverse cam drive are oilless. On the other end, all gear bearings and the traverse shaft are oilless.

Economies said to be made possible by this improved bearing development

are three-fold: saving in labor cost formerly necessary in oiling bearings every day, saving in cost of oil, and increased production of the machine due to continuous operation with only infrequent stops for normal inspection.

Cutting and Winding Machine

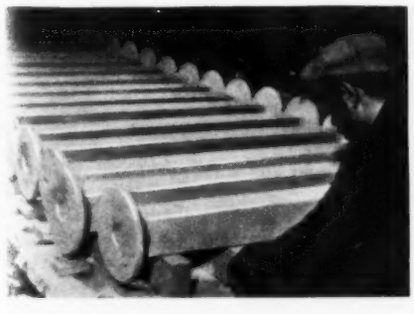
J. A. FIRSCHING, INC., 614 Broad St., Utica, N. Y., has developed a multiple collarette cutting and winding machine which is said to have the following advantages: saving of 50% to 75% in labor because the machine can

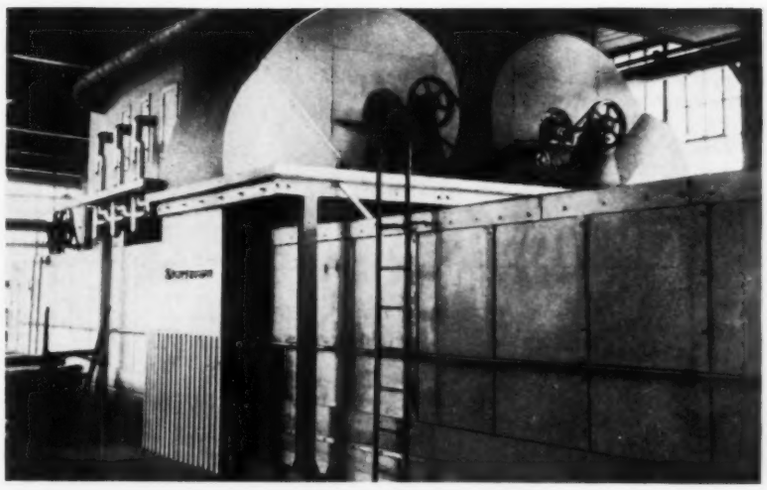


cut two or more strips at one time; saving from $\frac{1}{16}$ to $\frac{1}{8}$ in. on the width of each strip that is being cut between the knives because of its acuracy in cutting; operating speed is unlimited, the production depending entirely upon the operator; provides simple guiding of the fabric; operator can change to the various widths in less than a minute; equipped with a crushing cutter which enables the machine to cut all kinds of fabrics; gear-driven throughout; and is equipped with the Zerk system of lubrication.

Chemical Stoneware Dye Tub Reels

REELS and rolls for use in dye tubs, made of acid and corrosion-proof chemical stoneware, and in any design and size required by individual plants, are now offered by Maurice A. Knight, Akron, Ohio. The material from which these reels are made is said to be entirely non-absorbent and non-contaminating. The reels are smooth and well glazed so that material being dyed cannot be torn or damaged in any way by rough surfaces. They are also of great





structural strength and highly resistant to abrasion. The group of reels shown in the accompanying illustration are in the kiln preparatory to being baked. Dimensions of this particular lot of reels are as follows: $50\frac{7}{8}$ in. in length, with square cross-section of $4\frac{1}{2}$ in., and end flanges $9\frac{3}{4}$ in. in diameter. One end flange is slotted to take the mechanical power connection from the reeling device.

Tenter-Frame Dryers and Housings

B. F. STURTEVANT CO., Hyde Park, Boston, recently announced tenter-frame dryers and housings for high-speed operation. Efficient drying with this new equipment is said to be accomplished by a large number of carefully designed high velocity air nozzles located above and below the cloth. They first mechanically free the imprisoned moisture. The conditioned air evaporates it, and by rapid movement along the cloth carries the vapor away. Continuous baffle plates extending the entire length of the dryer are provided to insure even and efficient evaporation. Tenter dryers are equipped with selvage drying nozzles which are adjustable to the width of the goods being processed. Steam consumption is reduced to a minimum by the re-circulation of hot conditioned air. Steam-heating sections are of the high-pressure, extended-surface type, fitted with smooth type fin surface, thus reducing to a minimum the possibility of lint accumulation on the heating surface. Screen filters are located at strategic points. Tenter-frame dryer housings are constructed of No. 22 gauge galvanized sheet panels, $1\frac{1}{4}$-in. thick, filled with "Ban-Roc" rock-wool blankets. These panels are mounted on rigid steel frame-work, affording a sturdy housing with maximum insulating properties.

Advantages claimed for this equipment by the manufacturers are: drying speeds up to 150 yd. per min., even drying, flexibility increased by independent manual or automatic control of heating coils and high speed nozzles, low maintenance, low power consumption, and minimum steam per pound of goods dried. Fans are equipped with heavy-duty ball bearings and are designed for continuous 24-hour service. The illustration shows the Sturtevant system on two 70-ft. tenter frames in the plant of the Kerr Bleaching & Finishing Works, Concord, N. C.

Redraw Frame With Revolving-Type Tension

SIPP-EASTWOOD CORP., Paterson, N. J., has announced the development of a redraw frame of entirely different design from previous types. The tension on the machine is entirely new, being of a revolving type which applies the tension to the thread instead of to the spool, thus permitting the delivery of yarn over-end from the spool. The major advantage claimed for this delivery is that it eliminates broken ends and knots in the yarn and, as there is no inertia to be overcome or momentum, it is claimed particularly adapted to high-twist yarn. Greater speeds and increased production naturally result, according to the makers, the machine operating at 1,500 r.p.m. on the spindle.

The take-up spindles revolve in oilless bearings similar to those in the Sipp-Eastwood single and double-deck winders. Cork-head spindles are used. The new machine has a roller-bearing motor drive. There is an improved type piston traverse which is particularly rigid, according to the manufacturers, thereby contributing to higher speed and more evenly wound spools.

The machine is compact, being only 22-in. in width over all. If desired, the frame may also be used with a revolving spool.

Loom Equipped with Railway for Shuttle

TO permit the use of a long, heavy shuttle holding two or three times the usual amount of filling, a new loom providing a track for the shuttle has been invented by Oliver Shimwell, of Gawsworth Patents, Ltd., Solway House, Manchester, England. The "rails" of the track consist of two parallel lines of thin metal prongs, the

lines extending along the race plate and the prongs rising between the warp threads of the lower shed to mesh into a groove low down on each side of the shuttle. Another set of prongs or fingers extends downward through the upper shed to aid in holding the shuttle on the track. As a result, the shuttle is held to a positive course when passing through the warp and is at no time in contact with either shed.

Although the invention is ingenious, it seems possible that on many fabric constructions the prongs passing between the warp threads after each beat-up may fray the threads to some extent. Also on fine constructions it would seem that the prongs might separate the threads in a manner to cause reed marks. No doubt further information on these points will be available at a later date. A speed of 180 to 190 picks per minute is claimed for the new loom. From a cost standpoint the invention is chiefly applicable to non-automatic looms; but from a quality angle, it may prove of benefit to automatics.

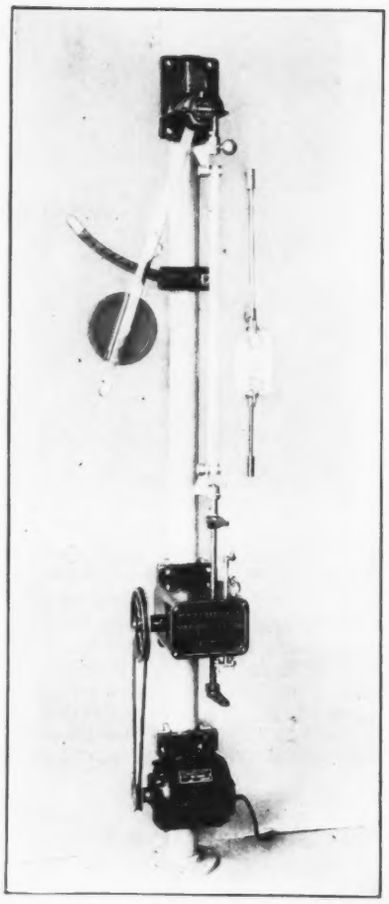
Non-Skid Spindle For Rayon and Silk Winding

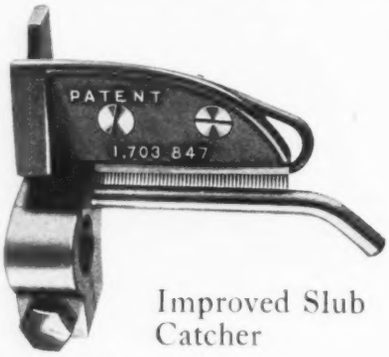
FOR winders and redraws, a new spindle said to have high traction has been announced by The Atwood Machine Co., Stonington, Conn. This new device, known as the "non-skid" spindle, is said to be particularly valuable where high pulls are encountered in winding or redrawing.

The head of the spindle is faced with a one-piece replaceable rubber tread, similar to an automobile tire. The contact of this rubber tread with the friction wheel is said to give a smooth-running, positive drive, and an extremely high traction or "non-skid" operation. This new tread it is claimed, is easily placed on the spindle; requires no cement, being held in place by its own elasticity; and may be applied to old spindles as well as new equipment. The outstanding feature of this spindle is said to be the elimination of slippage and the consequent loss of production on high-denier rayons and heavy silk threads, particularly where cleaners are used. It is not recommended for light threads.

Scott Model D-P Tester

DESIGNED for both yarn and cloth testing, a testing machine (Model D-P) of 150 lb. capacity has been announced by Henry L. Scott Co., Providence, R. I. The machine offers the following features: ball bearings, 45-degree lever movement, multiple pawls, adjustable bracket for regulating position of automatic reverse point, handle for resetting weight lever, slip pins for changing clamps, heavy iron frame mounting, and special electric motor. The design of the tester complies with standard specifications of the U. S. Government, the American Standards Association, and the American Society for Testing Materials.





Improved Slub Catcher

AN IMPROVEMENT in the method of setting the comb has been made in the MacColl spooler guide, or slub catcher, manufactured by Draper Corp., Hopedale, Mass. The comb is now attached to the holder in a fixed position. The size of the opening for the yarn is varied by an adjusting screw that lifts or lowers the comb by swinging the holder on its hinge. A set screw locks the adjusting screw so that the opening cannot change accidentally. The adjustment is said to be more easily and quickly made by this new arrangement.

Adjustable Spindle Speed

ON present spinning and twisting frames the drive is applied directly to the shaft of the tin roller. Since the diameters of the tin roller and the spindle whorl are constant, the speed of the spindles is constant, and any increase in twist which it is desired to give the yarn must be provided by slowing down the front rollers and decreasing the production of the frame. This situation, which seems to have existed and been tolerated for a surprisingly long period during the evolution of textile machinery, is corrected by a new invention of Thomas Heywood, Sheffield Road, Glossop, England.

The invention consists merely of a chain of gears between a new pulley shaft and the tin-roller shaft, including one or more change gears. This is in addition to the usual train of gears through which the rollers are driven. It will be seen, therefore, that the invention makes possible adjusting the speed of the spindles independently of the speed of the rollers. The new gearing is being manufactured by Tweedales & Smalley, Ltd., Castleton, Manchester, England, and can be applied to existing machines.

Spinning Ring

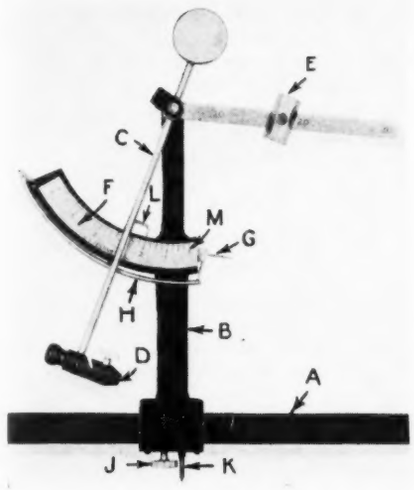
DRAPER CORP., Hopedale, Mass., has developed an improved high-grade steel spinning ring which, it is said, can be

started up with the same weight traveler as that used on old rings. The makers claim that considerable economies are possible because of the ease with which the new ring can be started up.

Twist and Take-Up Tester

FOR the purpose of overcoming discrepancies in the making of twist and take-up determinations on yarns, particularly silk and rayon crepe yarns, the United States Testing Co., Inc., 1415 Park Ave., Hoboken, N. J., has developed and placed on the market a new tester. Since most discrepancies are due to tension as applied to the yarn in placing it between the clamps of the twist tester and in elongating the yarn after removing the twist, the principal feature of the improved machine is a new tension and take-up device, which is applicable to standard twist testers now in use. The device is illustrated in the accompanying photograph, supported by the post *B*, slidably mounted on the bar *A*, which runs the length of the testing machine.

In operation, one end of the thread or yarn is placed in the clamp on the twist-tester head at the right (not shown). The other end is placed in clamp *D*; and, with the locking bar *H* open, the thread is pulled



until index pointer L is in line with starting mark M. Clamp D is then tightened. As twist is removed from specimen, pendulum C will gradually swing to the left taking up the slack in the yarn. When all twist is removed from yarn, a reading on take-up scale F at index pointer L is made, giving take-up of the twisted thread or yarn in .05 in. The eccentric lever G operates locking bar H, making it possible to hold pendulum C in any position from the starting mark M to the 6-in. mark on take-up scale. The weight E is movable, thus affording means of obtaining increased tension for heavier types of yarns. A chart has been drawn up showing the recommended tensions for various weights and types of yarn. Thumb screw J is for purpose of setting clamp D any distance from the head clamp at the right up to 20 in., as indicated by pointer K on the scale below (not shown).

General Equipment

ALSO of interest to the textile field are the following improvements in general industrial equipment:

V-Belts. Worthington Pump & Machinery Co., Harrison, N. J. Improved type of Goodyear "Emerald Cord" V-Belt in which all cords are completely embedded in rubber for the purpose of insulating against internal heat. New design said to provide high power capacity, long flexing life, uniform cross-section and low stretch.

Scale. The Kron Co., Bridgeport, Conn. Portable platform scale so designed that extreme loads may be placed upon the very edge of the platform without disturbing the scale's accuracy.

Indicating Gage. The Foxboro Co., Foxboro, Mass. Small size (2-in.) indicating gage with full length 270 scale, using Bourdon spring which is said to simplify the movement and increase the inherent accuracy. Any range from 0-15 lb. per sq.in to 0-300 lbs. per sq.in., as well as 0-30-in. mercury vacuum, can be furnished.

Transmission Belt. The Manhattan Rubber Mfg. Division, Raybestos-Manhattan, Inc., Passaic, N. J. Whipcord endless belts for applications where the take-up is very small and pulleys of small diameter, for light and medium loads, short centers and high tension drives.

Flow Meter. The Foxboro Co., Foxboro, Mass. Indicating flow meter with standard scale reading in percent of total flow, but can be furnished with scale that gives direct readings of flow.

Combination Instrument. The Foxboro Co., Foxboro, Mass. Combination instrument for recording and controlling pressure and for recording flow, with pressure controlling mechanism of the "Stabilog" type, which permits full-floating valve action.

Sensitive Bulb. C. J. Tagliabue Mfg. Co., Brooklyn, N. Y. Sensitive bulb of the "air gap" type for obtaining surface temperatures of mill and calender rolls by use of recording and dial-indicating thermometers.

Air Compressor. Allis-Chalmers Mfg. Co., Milwaukee, Wis. Single-stage, water-cooled rotary air compressor designed for wide range of pressures and vacuums.

Thermometer. C. J. Tagliabue Mfg. Co., Brooklyn, N. Y. Five-inch dial indicating thermometer, with moving element or bellows suited to vapor tension ranges between minus 40° and plus 335° F.

Automatic Timer. General Electric Co., Schenectady, N. Y. An "all electric" timer which can be used to operate a signal or terminate a process at the end of a predetermined period and is suitable for many automatic and remote-control applications. For use on alternating-current circuits.

Metal Alloy. The Duriron Co., Inc., Dayton, Ohio. Metal alloy, known as "Durichlor," which is said to be almost entirely resistant to hydrochloric acid at all concentrations and all temperatures up to the boiling point. Suitable for making pumps, valves, pipe, fittings, etc.

Gear Motors. General Electric Co., Schenectady, N. Y. Fractional horsepower gear-motors, 500 to 11 r.p.m., for applications requiring speeds lower than those normally obtained with ordinary motors.

Gear-Motors. Reliance Electric & Mfg. Co., Cleveland. Combination of motor and speed reducer into compact, self-contained unit, in sizes rated ¾ hp. and up.

Motors. Minneapolis-Honeywell Regulator Co., Minneapolis. Motors designed for the operation of controlling devices, for the direct drive of double seated regulating valves in a wide range of sizes, both reversing and non-reversing single phase types.

Splash-Proof Motors. Century Electric Co., St. Louis. Splash-proof motors, rated from one to 30 hp., with frame and end brackets of refined gray iron castings, cartridge type grease lubricated ball bearings, and one way ventilation.

Bearings. Gatke Corp., 228 N. LaSalle St., Chicago. Non-metallic bearings composed of special textile base impregnated with synthetic resins, moulded under high pressure, of three basically different materials for operation under wide range of conditions where resistance to tremendous pressure, wear, water, acids, heat, etc., is desired.

Controllers. Bristol Co., Waterbury, Conn. Time temperature and time pressure controllers for temperatures from 40° to 1,000° F. or pressures from 10 to 2,000 lb., operating according to a predetermined rate of change.

Rotary Pumps. De Laval Steam Turbine Co., Trenton, N. J. Turbine and motor driven rotary displacement pumps for oil burners designed for steady pressure so that oil may be atomized uniformly.

Greenville Textile Show Plans Developing Rapidly

Preparations for the eleventh Southern Textile Exposition, which is scheduled for Oct. 15-20, 1934, are well advanced, according to William G. Sirrine, president, Textile Hall Corp., Greenville, S. C. Discussing the effect of current developments on the textile show sponsored by his organization, Mr. Sirrine said:

"The problem of successful management of textile plants has become very difficult.

"The new regulations are sure to bring about more frequent contacts and closer relationships between the mills and the manufacturers of machinery, equipment, accessories and supplies.

"The Southern Textile Exposition next year will be the means of demonstrating what is necessary in machinery and equipment in order to obtain this result. Improving a textile plant is buying a ticket to prosperity."

Textile Calendar

Cotton-Textile Institute, annual meeting, New York, Oct. 18, 1933.

Committee D-13, American Society for Testing Materials, fall meeting, Biltmore Hotel, Providence, R. I., Oct. 19 and 20, 1933.

American Association of Textile Chemists and Colorists, Piedmont Section, Hotel Charlotte, Charlotte, N. C., Oct. 21, 1933.

National Rayon Weavers Association, annual meeting, Hotel New Yorker, New York, Oct. 31, 1933.

United States Institute for Textile Research, fourth annual meeting, New York, Nov. 2, 1933.

National Association of Woolen & Worsted Overseers, annual meeting, American House, Boston, Nov. 18, 1933.

Fourteenth Exposition of Chemical Industries, Grand Central Palace, New York, Dec. 4 to 9, 1933.

American Association of Textile Chemists & Colorists, annual meeting in conjunction with New York Section, New York, Dec. 8, 1933.

Silk Assn. of America, Annual Dinner, Waldorf-Astoria, New York, Jan. 18, 1934.

National Cotton Week, May 14-19, 1934.

Southern Textile Exposition, Eleventh Annual Exhibit, Textile Hall, Greenville, S. C., Oct. 15 to 20, 1934.

E. F. Greene Forms Service Corporation

The Enderley Corp., 48 Wall St., New York, has been formed by Edwin Farnham Greene, formerly president of Pacific Mills and Lockwood, Greene & Co., and a leading figure in the textile field for many years, to offer a financial service to the textile industry. Its facilities will include acting as broker in textile securities and mill properties, securing capital for reorganizations and assisting in effecting consolidations, taking options and participating in syndicates, and furnishing reports and advice on engineering and management problems.

Research Institute to Meet

The fourth annual meeting of the U.S. Institute for Textile Research will be held at Hotel Commodore, New York, Nov. 2. It is planned to devote the meeting to group sessions on the institute's major research problems. The program committee comprises W. E. Emley, chairman; E. R. Schwarz, vice-chairman; Louis A. Olney, H. J. Ball and C. H. Clark. Dr. Vannevar Bush, vice-president and dean of engineering of M.I.T., will introduce a symposium on progress in textile research.

THE PERSONAL PAGE

W. S. Nicholson, formerly president of the Cotton Manufacturers' Association of South Carolina, who has been connected with Excelsior Mills, Union, S. C., in an executive capacity, has been appointed an assistant deputy administrator of the National Recovery Administration, with special relation to the textile industry. Mr. Nicholson established headquarters in Washington, D. C., Sept. 27.

W. L. Allen, who conducted the hearings on the cotton textile code, has resigned his position as deputy administrator, NRA, to return to his private business in New York.

Stuart W. Cramer, president of the Cramerton (N. C.) Mills, has been reappointed treasurer of the Textile Foundation by President Roosevelt. Mr. Cramer received his first appointment from President Hoover in 1930 when the foundation was formed.

Robert Lassiter, former president of Mooresville (N. C.) Cotton Mills, has been made chairman of the board of the reorganized company. **John F. Matheson** has become general manager.

William M. Chadbourne, of New York, a partner in the law firm of Chadbourne, Hunt, Jaeckel & Brown, has been elected to the board of Bruck Silk Mills, Ltd., Cowansville, Quebec.

C. E. Folk, a graduate of the Clemson College (S. C.) Textile School, recently resigned his connection with J. H. McAden, Inc., Charlotte, N. C., to become superintendent of the Duchess Fabrics Corp., Statesville, N. C.

A. G. Myers, co-receiver for Textiles-Incorporated, Gastonia, N. C., has been elected president of the Citizens National Bank, of Gastonia, a new financial institution, which opened recently.

W. Ralph Armstrong, formerly purchasing agent for Textiles-Incorporated, Gastonia, N. C., has become treasurer and general manager of Lincolnton (N. C.) Thread Co., recently organized to acquire and operate the former Wampum Mills.

R. D. Sanders, for the last seven years connected with Morgan Cotton Mills, Inc., Laurel Hill, N. C., was recently elected secretary of the company.

R. M. Cushman has been appointed manager of Caramount Mills, Inc., Rocky Mount, N. C., succeeding **M. E. McCrosson,** resigned.

W. L. Phillips, formerly with Social Circle (Ga.) Cotton Mills, but more recently with J. W. Sanders Cotton Mills, Jackson, Miss., has been appointed superintendent of Lullwater Mill, Thomson, Ga.

E. F. Sherman of John F. Street & Co., was elected president of the Cotton Yarn Merchants Association at the annual meeting in Providence, Oct. 10. He succeeds **Fred A. Rakestraw** of Hyde-Rakestraw & Co. **Herbert A. Currier,** of Waterman, Currier & Co. was elected vice-president and **Frank A. Slack,** secretary-treasurer.

S. W. Duggan, treasurer and manager, Knoxville (Tenn.) Cotton Mills, is also general manager of Dorothy Mills, Inc., Delano, Tenn.

W. F. Odum, superintendent of the Sayles-Biltmore Bleacheries, Biltmore, N. C., was elected chairman of the Western North Carolina Safety Council at the organization meeting held Sept. 14.

W. D. Massey recently resigned as superintendent of Griffin (Ga.) Mills, Inc., and has been succeeded by **Floyd B. Watson,** who resigned a similar position with Exposition Cotton Mills, Atlanta, Ga., to return to his old post.

L. H. Rice, formerly superintendent of Brookside Mills, Knoxville, Tenn., has been appointed general superintendent of Alabama Mills Co., with headquarters in Birmingham, Ala., succeeding **R. O. Roberts,** who recently resigned.

T. G. Peacock formerly with Yale (Mich.) Woolen Mills has become treasurer of Rock River Woolen Mills, Janesville, Wis.

Leon J. Wehbring, assistant vice-president of Irving Trust Co., New York, has become secretary-treasurer of Susquehanna Silk Mills, succeeding **Frederick H. Knight,** resigned.

Ernest Rohr, general manager of Duplan Silk Corp.'s mill operations, and **George Friedlander,** sales manager of the commission throwing division, have been elected to the directorate.

T. R. Sosebee, formerly superintendent of the Banning (Ga.) Cotton Mills, has been promoted to the position of general superintendent. **J. C. Brannon,** formerly with the Martha Mills, Thomaston Ga., has been made superintendent.

A. M. Delcarlos, for many years identified with wool manufacturing in New England, has become general manager of the Roy Woolen Mills, Watervliet, N. Y.

Donald Quick, Gloversville, N. Y., has been named general manager of the new branch plant of the Kingsboro Silk Mills, at Fonda.

R. B. Hersley, formerly superintendent of West Boylston Mfg. Co., Montgomery, Ala., is now associated with Stein, Hall & Co., Charlotte, N. C.

J. S. King has resigned as superintendent of Woodside Mills, Fountain Inn, S. C., to become superintendent of No. 1 plant of Easley (S. C.) Cotton Mills.

George C. Bower, of Unionville, Conn., has been appointed superintendent of the Warrensburg (N. Y.) Woolen Co.

E. B. Tifft, former superintendent of the Harmony Mills, Cohoes, N. Y., has accepted an executive position with a textile concern in the South.

W. T. Draper has been made superintendent of the cloth division of Martinsville (Va.) Cotton Mill Co.

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Obituary

Darwin G. French, from 1915 to 1925 president of Arnold Print Works, North Adams, Mass., died at Woodstock, Vt., Sept. 28, aged 88.

William R. Knobloch, aged 71, former chairman of the board of the Duplan Silk Co., died in the Stamford (Conn.) Hospital Sept. 22. Mr. Knobloch retired from active business in 1927.

Luther M. Butman, aged 61, who retired in 1932 as president of Empire Worsted Mills and Acme Worsted Mills, Jamestown, N. Y., died at his home in that city Sept. 24.

George H. O'Leary, aged 89, for many years president of the Clover (S. C.) Mfg. Co. and Travora Mill, of York, S. C., died recently at his home in York.

Henry C. Paul, aged 82, organizer and first president of the Wayne Knitting Mills, died Aug. 30 at his home in Fort Wayne, Ind.

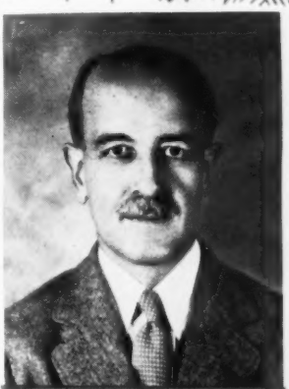
Lewis M. Smith, aged 79, for 19 years agent and superintendent of the American Yarn Co., Pawtucket, R. I., died at his home in Central Falls, R. I., Sept. 16.

Antonio B. Spencer, president of the U. S. Ring Traveler Co., Providence, R. I., and one of the best-known men in the textile supply business, died at the Jane Brown Hospital, Providence, on Sept. 16, aged. 81. He was connected with the William H. Haskell Co., Pawtucket, manufacturers of nuts and bolts. His great capacity for creating friendships was markedly evidenced by the many inquiries concerning him during the last four years when he was in poor health. He was a close friend of ex-Senator **Ezra Dixon,** president of the Dixon Lubricating Saddle Co., Bristol, R. I., and the two were inseparable at all gatherings and conventions. Mr. Spencer worked in various mills in the Pawtucket area and was superintendent of the Division Street Mill from 1887 to 1893 when he joined the Pawucket Mfg. Co. as a salesman. He entered the W. H. Haskell Co. in 1900 and became president of the U. S. Ring Traveler Co. in 1913. More than 400 of Mr. Spencer's friends gave him a testimonial dinner in Providence in celebration of his 70th birthday.

"CENTURY OF PROGRESS" MEETING MARKS FIRST MID-WEST CONVENTION OF

Textile Chemists

Robert E. Rose, president, A.A.T.C.C.



William H. Cady, vice-president

Alex. Morrison, vice-president

L. A. Olney, chairman, research committee

Wm. R. Moorhouse, treasurer, A.A.T.C.C.

A. Newton Graves, secretary, A.A.T.C.C.

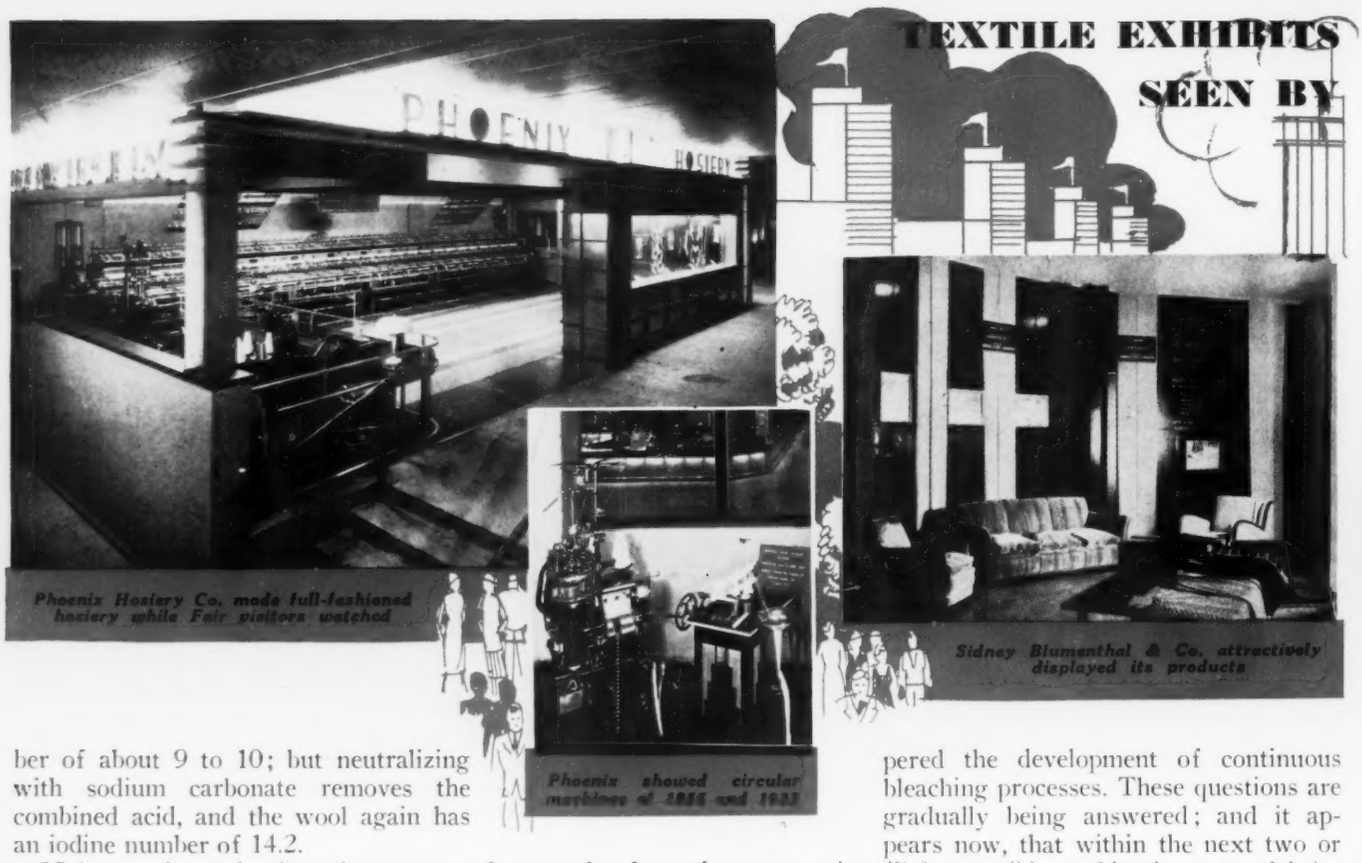
NEW processes which render obsolete those in common use five years ago and promise of still more radical changes in the near future were reported at the thirteenth annual convention of the American Association of Textile Chemists and Colorists, held Sept. 8 and 9, at the Congress Hotel, Chicago. That the advances already made are due largely to fundamental and applied research and that the remaining problems of the processing industry are being vigorously attacked were demonstrated clearly in the papers presented at the technical sessions. Thus, improvements in the carbonization of wool, new methods for bleaching with peroxide, developments in the manufacture and application of wetting agents and finishing compounds are but a few of the contributions of the chemist and physicist which were discussed at the meeting.

Impressive also was the manifestation that these scientific investigations aimed toward the betterment of textile processing are being pressed by many groups. For example, there were reported the results of work by the research committee of the association and by research fellows and associates supported by the Textile Foundation. Again, was indicated the scope of studies being carried out at various educational institutions on basic problems, such as those involving fiber structure and its relation to the properties of textiles. Evidence was given also of the efforts of the dyestuff and chemical manufacturers to develop new and improved materials and methods of application. Some of the more important of the recent advances in theory and technique reported at the meeting are given in the following paragraphs.

Wool Carbonizing

In the first paper presented at the Saturday morning technical session, Milton Harris, research associate of the A.A.T.C.C., outlined the results of an investigation of the action of sulphuric acid on wool. According to Dr. Harris, studies completed thus far have shown that the carbonizing process involves the absorption of sulphuric acid and that careful control of this process is essential to minimize damage to the wool. It has been found that while acid applied in very dilute solutions can be removed from the wool by washing with water, acid employed at the strength ordinarily used in carbonizing cannot be entirely removed except by chemical means. Determination of the iodine number of the wool has proved useful in ascertaining the nature of the acid-wool combination and the extent to which the wool is affected by various treatments.

Treatment of Texas wool with normal sulphuric acid lowers the iodine number from 14.2 to 7.2. After prolonged washing with water, the wool has an iodine num-


TEXTILE EXHIBITS SEEN BY
Phoenix Hosiery Co. made full-fashioned hosiery while Fair visitors watched
Phoenix showed circular machines of 1855 and 1933
Sidney Blumenthal & Co. attractively displayed its products

ber of about 9 to 10; but neutralizing with sodium carbonate removes the combined acid, and the wool again has an iodine number of 14.2.

Moisture determinations by means of a newly developed low-temperature vacuum method disclosed the fact that the wool treated with sulphuric acid absorbs less water than does untreated wool; for every mole of acid entering into combination with the wool, one less mole of water is absorbed.

Preliminary studies made with 5% sulphuric acid indicate that all loss in tensile strength occurs during the first 15 minutes of baking; and further investigation is expected to disclose in detail the conditions to be observed in carbonizing in order to minimize injury to the wool.

Peroxide Bleach

Advances in peroxide bleaching have been so rapid that every process used in 1925 has been discarded or improved beyond recognition, it was stated by H. G. Smolens, of Buffalo Electro-Chemical Co. Little further progress in the directions of improvement of quality and lowering of processing costs can be expected with present equipment, and future developments will probably be in the introduction of machinery designed specifically for bleaching with peroxide. Contrasting old and new methods for bleaching wool raw stock, Mr. Smolens declared that five years ago it was common practice to scour and dry the stock, soak it overnight in peroxide, wash, and dry; today, the wool is being bleached in the scouring range in much quicker time and at about $\frac{1}{8}$ to $\frac{1}{10}$ the former cost. Comparable progress has been made in bleaching tops, yarn, and piece goods.

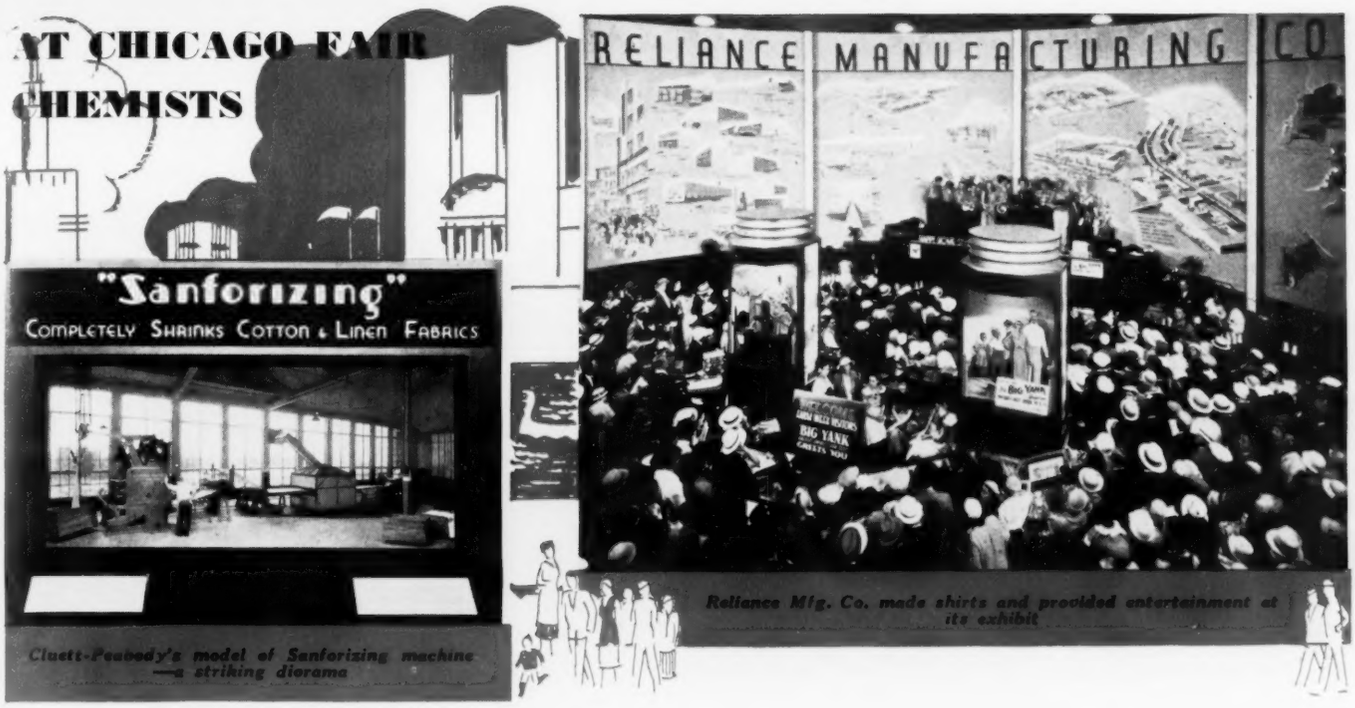
During the last five years steady improvement has taken place in bleaching methods for fabrics containing tussah silk, rayon, and cellulose acetate. In the same period peroxide has continued to gain favor for cotton bleaching, and is now being employed on a wide range of materials. At present, however, there are many unsolved problems connected with the peroxide bleaching of cotton. For instance lack of definite knowledge as to the best preliminary treatment for cotton fabrics has hampered the development of continuous bleaching processes. These questions are gradually being answered; and it appears now, that within the next two or three years it will be possible to bleach cotton fabrics continuously in the open width.

Better Rayon

Marked improvement in the physical and chemical properties of rayon and other synthetic yarns is largely responsible for the tremendous increase in consumption of these materials during the last few years, according to Dr. Harold D. W. Smith, of A. M. Tenney Associates. After tracing briefly the growth of the rayon industry of this country, Dr. Smith discussed the progress made toward finer filaments and deniers, improved appearance of the yarns, increased tensile strength, and better dye-absorption qualities. As an example of the trend toward finer filaments, the 14-filament, 150-denier viscose of 25 years ago can be contrasted with the 18-filament yarn of 10 years ago and the 40-filament yarn of today. This increase in filament fineness has resulted in a less rigid yarn, which in turn, yields fabrics with superior draping qualities. A similar trend toward finer deniers has taken place, 90% of the yarn imported in 1913 being of 150 denier, and in 1932, 25% of the domestic production being finer than 150 denier.

The next speaker, J. G. Stott, Jr., of Ciba Co., Inc., outlined the progress which has taken place in the last century in the manufacture of wallpaper. Among the processes described by Mr. Stott were those for producing wallpapers resembling damask and silk weaves, and for printing flock paper by means of lake colors in combination with glue and wood pulp. Other types discussed were those of the oatmeal class which are dyed in the pulp, and the varnished and tile effects.

A comparison of various methods for determining small amounts of copper in textiles was made by Dr. Walter M. Scott, of G. J. Esselen, Inc. It is now generally accepted that the amount of copper in fabrics to be rubberized shall not exceed 0.003%. In order to make certain that a larger amount is not present, accurate



Cluett-Peabody's model of Sanforizing machine —a striking diorama

Reliance Mfg. Co. made shirts and provided entertainment at its exhibit

analytical methods are required. Of the various procedures which have been proposed, those which give the most dependable results and which, therefore, should be given further consideration appear to be a colorimetric method using potassium ferrocyanide as the indicator, a colorimetric method using potassium ethyl xanthate as the indicator, and particularly a volumetric method in which the copper-containing material is treated with potassium iodide and starch and then titrated with sodium thiosulphate.

Research Activities

Commenting on the research activities of the association, Prof. Louis A. Olney, chairman of the research committee, stated that there are at the present time 22 sub-committees, of which six have practically completed their work; 9 more are well along on their projects, and 7 are of a continuous nature. At the meeting of the research committee held Friday morning a new sub-committee was authorized to make a study of mercerization. Work now being carried on includes that of the sub-committee on light fastness, which is checking the new German and English standards and is making a comparative study of the Fadeometer and Fugitometer.

The association at present has four full-time research associates, and their work is being supported largely through allocations from the Textile Foundation. Research projects now being supported by the Foundation are on a study of the carbonization process, an investigation of wool scouring as regards the combination of soap and alkalis with wool and their removal therefrom, study of the relationship between the quantity of dye absorbed and the changes on the fiber and on the dye, and a fundamental investigation of printing pastes.

Results of preliminary studies of the relationship between the structure of textile fibers and their tensile strength were reported by Wayne T. Sisson, of the University of Illinois. In this investigation, X-ray analyses disclosed the fact that the orientation of the cellulose chains in cotton varies from that in viscose, which in turn differs from that in cuprammonium yarn. It was shown, furthermore, that the tensile strength of a textile fiber is dependent upon the cohesion between the miscelles of the fiber. The length and diameter of the miscelles, as well as the average angle at which they are distributed, can be ascertained by X-ray analysis; it has been possible to work out the formula $T = AK$, wherein T = tensile strength, K = constant of cohesion (which differs with the various fibers), A = area of contact between units.

A new theory of the relationship between chemical constitution and wetting action was propounded by W. Kritchevsky, of Rit Products Co. The speaker held that a wetting agent should have both an active water soluble polar group (hydrophilic group) and a hydrophobic carbon-chain group. According to Dr. Kritchevsky, wetting agents with the polar group at the end of the molecule are the most effective in reducing the surface tension of the liquid to which they are added. The length of the hydrocarbon chain is also important, wetting agents with shorter chains being more soluble in water. Study of the chemical construction of wetting agents is advisable, therefore, in order to determine which ones are most effective, and which should be used for a specific purpose.

Modern practice in the manufacture of sulphonated oils which enables the production of a wide variety of compounds suitable for a broad range of uses was described by Floyd H. Davis, of National Oil Products Co. After discussing briefly the various natural and synthetic raw materials and the more common sulphonating agents employed in making sulphonated compounds, Dr. Davis explained that sulphonation is not a simple chemical reaction, but involves a number of side reactions. By careful control of the process, it is possible, however, to control the properties of the end products. In this way, highly sulphonated products can be obtained which have good stability in hard water and acid solutions. On the other hand, less highly sulphonated oils can be produced which are more effective as softening agents, for silk soaking, and other applications where a certain amount of neutral oil is desirable.

Newer Detergents

According to Dr. Samuel Lehner, of E. I. duPont de Nemours & Co., Inc., experience in the application of

A good crowd turned out for the A.A.T.C.C. banquet at Congress Hotel, Chicago, on Sept. 8

fatty alcohol sulphates has shown that certain individual members of this group of compounds are particularly effective in specific operations. Thus, in wool scouring it has been found that while Gardinol CA can be employed on all types of wool, Gardinol WA is suitable only for treating pulled wool. In a mill trial involving the scouring of 1,700,000 lb. of raw stock, it was found that the average consumption was 1 lb. of Gardinol CA to 1,200 lb. of wool in the grease and 1 lb. of Gardinol WA to 960 lb. of wool. With Gardinol CA, 1 lb. of soda ash was required to 18 lb. of wool, while with Gardinol WA, 1 lb. of soda was required to 17 lb. of wool. Recently, a new type of Gardinol CA has been developed which is expected to give better results in wool scouring.

Due to the fact that the sulphonated fatty alcohols do not have a high enough viscosity to give the required mechanical action, they are not yet entirely satisfactory for scouring piece goods, but are recommended as an addition to the soap bath. These compounds have been found to aid level dyeing, and to give a softer product when used to replace a part of the glauber salt in the acid dyeing of wool.

In the fulling machine, Gardinols exert no felting action, but serve to increase penetration and rinsibility, thereby reducing the time required for fulling and rinsing. Other of the newer applications of the fatty alcohol sulphates cited by Dr. Lehner include the washing of printed fabrics, the bleaching of silk and wool with peroxide, the soaking of silk, and the lubrication of knitting yarns. The Brilliant Avirols find use in finishing a wide variety of fabrics, giving apparent body to the goods and acting as a softener.

Fiber Lubrication

Lubrication of textile fibers with a purified form of the natural lubricant removed in kier boiling and similar processes was described as a new possibility by Prof. Charles B. Ordway, of Alabama Polytechnic Institute. In the belief that products possessing certain of the properties of the natural lubricants, would possess many advantages, a research worker at the Institute has developed a synthetic lubricant which is designed to incorporate the waxiness, high resiliency, and elasticity of the natural cotton waxes, but at the same time is soluble in water. Laboratory and plant experiments in lubricating cotton raw stock with this compound have given gratifying results. It has been found, for example, that the lubricant is non-corrosive to metallic card clothing and decreases card-room fly. Cotton sprayed with this material has been found to have a regain about equal to raw cotton.

In a discussion of the manufacture and uses of starch products in the textile industry, H. A. Crown, of Corn Products Sales Co., stated that the water-soluble content and the fluidity of the solutions are the most important properties of these materials from the viewpoint of the mill man. It is these properties which determine the amount of penetration which can be obtained and the flexibility of the goods. Normal starches are, in general, thick-boiling products which give a surface coating and stiffness to the yarn or fabric. Three methods are in common use for preparing starch derivatives. An acid-wet treatment yields the thin-boiling starches; an acid dry-roasting process gives the dextrins; and a dry roasting process without acid produces the British gums. These various processes can be so controlled as to give thin-boiling starches, dextrins, and British gums of any desired fluidity to meet specific conditions.

Sessions on Friday afternoon consisted of meetings of the Council and Research Committee, visits to the plant of the Corn Products Refining Co. and to the Bureau of Standards of Montgomery Ward & Co. On Friday evening an informal dinner was held, after which B. H. Harvey, of Montgomery Ward & Co., delivered an illustrated address on the role of chemistry in merchandising. In the absence of Dr. Robert E. Rose, president of the association, William H. Cady, vice-president, presided at all technical sessions.

Speakers at the annual banquet held Saturday night were Prof. Louis A. Olney; G. D. Pratt, representing the British Society of Dyers & Colourists, and W. H. Spencer, Dean of the School of Business, University of Chicago. John W. Eich, of General Dyestuff Corp. acted as toastmaster. The convention was held under the auspices of the Mid-West section, of which Carl E. Bick is chairman. The arrangements committee consisted of A. T. Brainerd (chairman), E. F. Smith, A. J. Feil, E. A. Johnson, D. H. Powers, and G. M. Markle.

ADVERTISING PAGES REMOVED

Textile World Analyst

ACTIVITY AND PRICES WITHSTAND PRESSURE OF UNCERTAINTY

Activity Well Above Normal: The spread between 1933 textile mill activity and what we have assumed as a normal period continues to increase. Based on total consumption of raw material, the rate for the first eight months of this year was 6% above that for the first eight months of the eight-year average (1924-31). It was spectacularly above last year, the 1933 rate being 42% over that of the same period of 1932.

CONSIDERING the pressure placed upon the market by the hesitation and uncertainty which has affected all business recently, the textile industry has continued to give a good account of itself both in the provision of employment to its workers, and in the resistance of its price levels. In fact, there was an upturn in sentiment during the latter part of Sepember, and the worst of the uncertainty seemed to have been relieved, for the time being at least.

Manufacturing margins held remarkably steady, under the conditions. In carded print cloths and carded yarns, as shown in Tables I and II, the fluctuation was within a relatively narrow range. Cloths particularly were marked by stability, the net difference for the month being a loss of only $0.9c. Yarns lost 2.7c., reflecting the effect of the somewhat artificial advance in the summer.

The wool group of TEXTILE WORLD's price index numbers continued in September the steady rise which started last March. The raw wool index number is now at the highest point since January, 1930, when raw wool was 148, tops 161, yarns 177, and cloth 211.

The only feature in the cotton group for September is the drop in the yarn index number from 170 in August to 156 in September, despite the very slight change in the raw cotton index (which includes the processing tax). In this connection, however, it is well to take into consideration the fact that yarn quotations during most of August were extremely erratic, due to uncertainty regarding the added costs under code operation. The September figure represents the anticipated settling of prices. The silk index number of September showed no change.

The now routine question regarding the consumer's attitude toward the higher price-levels is still largely unanswered. However the real test is at hand: the rate of retail buying during the next few months will be one of the best indices of the degree of effectiveness of the entire recovery program.

The hesitation in general business was a perfectly natural manifestation. September marked a psychological turning point in the situation. The *Guaranty Survey*, published by the Guaranty Trust Co., expresses that change as follows: "As the NRA movement passes from the phase of organization into that of operation, visible developments in its progress become less striking." It adds the following hopeful thought: "Viewed as a whole, the events of the last few weeks seem to support the belief that definite progress toward recovery has been made and that the normal stimulating influences of the autumn season may reasonably be expected to bring further improvement."

The emphasis which is now being placed upon the need for stimulation of the capital goods industries is a most encouraging sign. It has become increasingly evident that broad recovery cannot result from improvement in consumer goods alone, and that demand for heavy machinery and other types of capital goods will not develop spontaneously. Consequently, Washington has given much thought to the extension of credit facilities toward this end. Out of this particular effort should come one of the most important forward impulses of the recovery movement.

TABLE I. CARDED FABRIC MARGIN

Date	Margin in cents	Date	Margin in cents
July, 1931.....	15.3	February, 1933.	10.1
October, 1931..	13.3	March, 1933...	10.2
January, 1932..	12.1	April, 1933.....	11.4
June, 1932.....	9.5	May, 1933.....	15.6
July, 1932.....	9.1	June, 1933.....	20.6
August, 1932..	11.1	July, 1933.....	23.4
September, 1932	13.0	August, 1933...	21.4
October, 1932..	12.6	September, 1933	19.5
November, 1932	10.7	September 6..	18.8
December, 1932	10.6	September 13..	19.3
January, 1933..	10.4	September 20..	20.2
		September 27..	19.8

TABLE II. CARDED YARN MARGIN

Date	Margin in cents	Date	Margin in cents
July, 1931.....	12.6	February, 1933.	9.4
October, 1931..	12.7	March, 1933....	9.8
January, 1932..	10.9	April, 1933.....	10.1
June, 1932.....	9.9	May, 1933.....	12.3
July, 1932.....	9.6	June, 1933.....	15.4
August, 1932...	9.7	July, 1933.....	23.2
September,1932	12.8	August, 1933...	23.5
October, 1932..	12.3	September, 1933	21.3
November,1932	11.3	September 6..	22.1
December, 1932	10.9	September 13..	21.6
January, 1933..	10.2	September 20..	20.7
		September 27..	20.8

▼ ▼ ▼

Textile World's Price Index Numbers

Date	Cotton Index Numbers: Cotton	Yarns	Gray	Colored	Wool Index Numbers: Wool	Tops	Yarns	Cloth	Silk Index: Raw Silk
July 31, 1914..	100	100	100	100	100	100	100	100	100
1925.....	187	188	189	176	223	229	224	233	143
1926.....	140	155	157	149	184	189	179	207	136
1927.....	140	153	159	153	181	184	187	195	119
1928.....	160	162	162	166	199	202	199	197	110
1929.....	153	144	145	167	176	179	192	211	108
1930.....	108	125	123	144	127	139	161	202	
1931.....	68	93	92	119	99	112	134	161	
1932									
Jan.....	53	78	74	102	94	104	127	147	41
July.....	47	68	62	96	59	72	101	116	25
Oct.....	52	83	78	107	82	97	115	130	37
Dec.....	48	74	69	103	77	87	108	125	33
Jan. 1933.....	50	72	67	100	76	85	105	125	29
Feb. 1933.....	48	68	65	95	75	83	102	125	26
Mar. 1933.....	49	70	66	96	75	84	102	125	26
Apr. 1933.....	56	74	72	97	78	90	104	125	29
May 1933.....	60	93	94	101	104	113	116	169	34
June 1933.....	76	109	117	112	122	139	135	192	47
July 1933.....	86	138	135	131	134	153	156	201	50
Aug. 1933.....	110	170	151	147	136	157	159	217	41
Sept. 1933.....	111	156	149	147	144	177	165	228	41

Note: All cotton indices include processing tax.

QUESTIONS AND ANSWERS

Uneven Shade on Mohair-Rayon Fabric

Technical Editor:

We are enclosing herewith two pieces of fabric made from a yarn consisting of spun rayon and mohair, with the former the predominating fiber. After having dyed several thousand pounds of this yarn in the skein, in a number of colors and very satisfactorily, we suddenly find that several batches delivered during the recent past, and dyed from a new shipment of yarn received, show a decided unevenness. No change in dyestuff or in processing has been made. The question which is now troubling us, as well as our customer, the knitter, is whether this unevenness is caused by improper dyeing or whether it is due to the fact that two fibers are present, both of them somewhat slippery, resulting in an unbalanced blend of the two fibers. This unevenness is brought about by the fact that more of this spun rayon predominates in some of the yarn with a smaller amount of mohair, and a greater amount of mohair in others with a proportionate amount of rayon. We feel that could readily result in the unevenness experienced, as we cannot understand why this material should suddenly come out uneven in dyeing, since it is disposed to take the dyestuff very slowly. We shall appreciate your opinion on this matter. (8042)

We note that each fabric is knit from three different types of yarn; first a white, then a solid color, and finally a mix showing white fibers. The white and solid shades are all mohair, dissolving entirely in caustic soda and showing no rayon fibers under the microscope. The mixed yarn, however, contains a high proportion of rayon, as shown both by the residue left after boiling with caustic and by a microscopic examination. We can detect no appreciable difference in the dyeing, but note that the proportion of white, undyed fibers varies throughout short lengths of the yarn, as well as in those parts of the fabric showing the banded effects. The yarn shows plainly an imperfect mixing of the two fibers. If this is due, as you suggest, to one fiber slipping over the other, it may be avoided by the use of the proper type of a spinning emulsion, which will stabilize the mix and permit it to spin evenly. If the proportion of fibers has been changed, only the spinner will know this, although you may send a sample of the two lots to some testing laboratory and get a report on the relative proportion of the two fibers in the two lots. The uneven appearance of the finished fabric is certainly due to the varying amount of white fibers which show on the surface.

▼

Stain on Silk Hosiery

Technical Editor:

We are enclosing a pair of white stockings on which we solicit your advice. You will note that at the beginning of the high heel there is a line, which appears to be rust or other foreign matter. We have been having quite a bit of trouble with this, and do not know just where to place the trouble. Will you kindly give us your opinion. (8035)

It is our opinion that if the stain in the heel were rust, the bleaching process would be almost certain to tender the stocking at this point; and there is no indication of tenderness. Since the stain line is confined to the high spliced heel and does not appear in the rest of the stocking, it indicates that the stain was in the splicing. It has the appearance of an oxidized oil stain. The splicing often remains on the machine for a long time; and because of the small quantity of silk used from the cone for each set, an oil or grease spot caused by the knitters' soiled or oily hands, would run through several sets of hose. It is possible that the splicing cones are too large and stay in the humidor too long, causing the silk at the two exposed ends of the cone to oxidize and deliver a short section of yellow silk at these two points and at regular intervals.

▼

Leno Weave for Laundry Bag

Technical Editor:

May I inquire regarding the enclosed fabric, which is a swatch of a laundry bag made tubular on the loom. We have considerable trouble with the bags coming off in variable lengths, even though the number of picks is the same. They are made on a C&K gem head. We have been making them on one beam (both doup and standard end on same beam). There is no slackener—only a rod in a lease between harness and back roll, which separates the ends of each layer of the tube. To take up the slack between the doup end and the standard sets, the standard end is drawn in on a half heddle and acts as a doup on alternate picks, while the doup end is also drawn in on a half heddle standard and doup alternately. Therefore four sets of skeleton and standards are needed, whereas if two beams and slackeners were used only two sets would do, but of course would require a second beam. Which is considered the most practical way of handling this? (7992)

This is the common half-turn leno weave. There is a variety of methods by which this cloth can be woven. When woven in tubular form, the method you describe is about as good as any. This is the best when using very heavy warp yarns; it is also the least expensive.

Slackeners are rarely used on this type of leno. There is little need for them when the warp yarns are composed of two or more ply. A compensating rod, located back of the harnesses, will take the place of one harness shaft and heddles, thus eliminating the space and wear and tear of shafts and heddles. There is no difference in the contraction of the doup and ground ends in a weave of this type. One beam is sufficient. The matter of beams, harnesses, and slackeners has no bearing on the varying length of the bags.

We are assuming that a multiplier device is used for the measuring of the bags. When a certain length of bag is woven, the two cloths are merged together as one. If this be the case, we know this equipment to be positive in action as a dobby and accurate as a measuring device. If the same number of picks is inserted in every bag, and these bags vary in length, the fault can be laid to slipping gears or to the fabric slipping on the sand roll. Sometimes the loom is too light for this type of fabric and the picks when inserted will spring back. The remedy is to strengthen or brace the reed cap and sand-roll parts.

▼

Maintaining Sheeting Widths

Technical Editor:

We have experienced considerable trouble in maintaining widths on narrow sheetings. We believe that the chief cause of the trouble is to be found at the loom. Also in the cloth room, where the goods are sewed together, the cloth has a tendency to pull in on each side of the splice. Sometimes it is also noticed that one cut may be as much as ½ in. narrower than another. No doubt you can give us some worthwhile information which will assist us in overcoming this trouble. (8021)

The maintenance of a uniform width of cloth is dependent on the type of let-off used on the loom. Many of the modern sheeting looms are equipped with the Roper let-off, which is semi-automatic in operation. It will compensate for the differences in the thickness of the yarn content of the loom beam.

When a new warp is started, the thickness of the yarn content on the beam is much greater than when the warp is reduced to the last cut or two. The greater the diameter of the beam and its content, the easier is the yarn delivered from the beam, because as the diameter decreases, the strain increases. If a compensating device is not used, the variation in tension would have to be regulated by the weaver, and the average weaver is not a good judge as to how the tension of the warp has to be changed as the diameter of the warp on the beam changes. The Roper let-off will automatically change the tension on the warp yarn; and, while it may vary somewhat, it is accurate enough.

Assume that a new warp is started on the loom, that the proper tension is given the warp, that a measurement of the width is taken, and that everything is found to be correct. If a compensating device is not used, after a few cuts have been woven and the original tension is not changed it will be found that the cloth has become narrower. This is due to the increased tension caused by the decreased diameter of the yarn on the loom beam.

There are three possible causes for the

QUESTIONS AND ANSWERS

cloth becoming narrower. First, too much tension has been applied to the warp before weaving. Second, the new warp may be started in the loom with too much tension. Third, the cloth, after being taken from the loom, may be run through a brushing machine at too great a tension, particularly if the cloth count is low.

The only practical way to keep the cloth at the proper width is to start the full warp at the tension that will give the correct width of cloth for the first two or three yards. Then make marks on the breast beam of the loom and check up daily. See that the selvages do not come inside these marks. When the selvages do come inside the marks, it is time to change the tension on the loom beam by loosening the spring, if a Bartlett or Roper let-off is used, or by taking off some of the weight if a weight lever is used.

It is good practice to use a reed that will deliver the cloth from the loom about ¼ in. too wide. By the time the cloth has gone through the folder and the brushing machine, this extra ¼ in. will have disappeared. Spreaders on the folders and brushing machines help to keep the cloth out to proper width, but it is safe to say that from ⅛ to ¼ in. will be lost in the brushing and folding operations.

▼

Removing Stains from Wool Fabric

Technical Editor:

I am enclosing a swatch of cloth which has received some stains from the bearings of an old-time washer. I have tried to get them out, but have not been successful. I used benzine, carbon tetrachloride, turpentine, and ether. Please tell me what will remove the stains. (8043)

We find that the stain which now remains in the fabric is mostly iron stain. This stain can be removed by treating the goods in a warm 5% solution of oxalic acid for 10 to 15 min. followed by a thorough rinsing. Inasmuch as this treatment affects the shade somewhat, it will be necessary to redye these pieces to bring them up to the correct shade.

▼

Distorted Hosiery Stitches

Technical Editor:

We should appreciate very much your opinion as to the cause of the distorted stitches in the welt of the enclosed stocking. The welts are perfectly normal before dyeing. (8018)

The sample shows purely a condition of sleazy knitting, with a little added touch of so-called "strawberry" stitch; and both the sleazy knitting and the strawberry stitch have evidently been caused by the use of dry silk in the hem.

The trouble has been magnified by boarding the stocking too dry, or rather the stocking has the appearance of having been extracted too long or too dry, or having laid around too long after being extracted and before being boarded. This

has produced some permanent creases or watermarks. To correct the trouble, we advise using a somewhat heavier silk in the welt or knitting a little tighter, and seeing that the silk is properly conditioned. Then the final finish will have to be given some attention to see that too many stockings are not crowded in the dye bag or extracted too dry in the hydro-extractor, and that they are promptly finished after being extracted. We feel sure that, if you will take care to see that the proper amount of moisture is left in goods after extracting and that the goods are boarded immediately after extracting, much of the trouble will disappear.

You state that the welts are perfectly normal before dyeing. We believe if you will make a careful investigation you will find the distorted stitches in the gray goods. However, the creases or water marks can be eliminated in the dyeing and finishing operations and the appearance of the welts greatly improved.

▼

Streaks in Rayon Filling

Technical Editor:

Inclosed please find swatch of cloth made from 75-denier, 18-fil., viscose rayon with 32 turns per inch in warp and filling. If you will look closely at this cloth from the side you will notice some pronounced streaks in the filling. We find these defects in the gray goods, but they seem to stand out more after being dyed. The dyer handles this cloth on a padder and finishes it on a tentering frame. I should appreciate it if you would advise me as soon as possible as to whether the fault is in the manufacture of this cloth, as the mill seems to have considerable trouble producing it without these streaks. (8039)

The streaks fillingwise are shiners, but they are not caused by any excessive tension inside the shuttle. They vary from 1 to 10 in., and we believe they are caused during the operation of twisting. The twist in the filling varies from 37½ to less than 28 turns per inch. The parts having low twist are where the streaks or shiners appear.

This condition in filling or warp is caused by a faulty traverse motion or by worn twister rollers. The rollers become grooved; and, if a thread in the process of twisting runs into a groove, the result is a lack of twist. The less the twist in rayon, the greater the luster.

If the twisted yarn is used for warp, it will show some streaks; but they will be somewhat subdued, owing to the tension of the warp threads as they interlace with the filling threads. The filling is loose as the pick is inserted, and the tension on the warp causes the filling to bulge up to a certain extent, throwing it into greater prominence.

Fleeced Knit Goods

Technical Editor:

For a good many years we have produced fleece fabrics such as we are sending you. We should like to make a fleece like sample marked No. 2. The first fabric mentioned is made and finished in the following manner: Knit on Tompkins spring-needle machines, washed in string washer, and napped on double-acting napper. We have carding and spinning facilities, and spring-needle machines in gages of 12, 18, 22, 28, and 30. (7950)

The main difference between the samples submitted are the gage and the backing yarn. The No. 1 fabric is made on approximately 20 or 22 gage, whereas the No. 2 sample is of coarser gage, probably 18. The backing in the No. 1 sample contains a high percentage of wool fiber, but the No. 2 fabric which you wish to make is all cotton. Therefore, it is suggested that you use an 18-gage set-up of single plush on your machines with any convenient number of feeds. Backing yarn is used on each feed, and the wheels are blocked two and one. The size of this yarn is rather difficult to determine from the sample, since it has already been napped. Approximately a 16/1 cotton is about right for the face yarn. The yarn sizes are more or less of an experimental problem, depending upon the factors of stitch length, weight of fabric desired, and amount of nap required.

▼

Defective Napped Fabric

Technical Editor:

We are enclosing a sample of a napped headlining fabric. You will note that this is quite badly damaged. The superintendent of the dyehouse asserts that the gray napped goods were in this condition when he received them; on the other hand, the superintendent of the napping department states that they were in perfect condition when they left him. Processing of the napped goods is as follows: Boiled out and dyed on a jig, six ends in the dye liquor; dried without being mangled; tentered; rolled up on the tenter; and shipped in this state. We shall appreciate your opinion as to the cause of the defect. (8030)

While we are unable to detect anything wrong with the napping, the simple method used in dyeing and finishing should apparently cause no difficulty. It is noted that the small indentations in the fabric run warpwise and in very regular form. This indicates the possibility that the damage was caused by passing the goods through an expander with a drag on them warpwise. If any stretching apparatus is used in drying the goods, we suggest that one of the revolving ring-cam type with ball-bearings be employed, and that the unnapped side of the fabric be made to come in contact with the expander.

If you are still having difficulty of this nature, we suggest that you have the fabrics inspected after napping and before boiling-out and dyeing. In this way, you will be able to determine positively in what department the defect is caused.

TEXTILE WORLD'S

Cotton Digest

A LOT of loose talk is heard nowadays about profiteering in cotton goods. Our own records indicate that manufacturers, at least, are not profiteering. The increase in manufacturing margins is not out of line when the added labor costs, under the code, is taken into consideration.

Nor have we noted exorbitant mark-ups in the retail stores with which we are familiar. In fact, we consider most current retail prices on cotton products good buys.

Of course, if consumers and others are comparing today's quotations with some of the disgustingly depressed levels of the last year or so, an impression of sharp advance may be secured. Early last spring we saw excellent cotton house-dresses sold in a chain-store at 50c., and a very decent cotton necktie at 7c. Sweatshop labor *must* have entered into the manufacture of those two articles of apparel. The sooner we get away from that type of prices, the better.

Cotton-goods manufacturers should never miss an opportunity to scotch the fancy conversation on profiteering which is now going the rounds.—*Editor.*

Institute Annual Meeting

The eighth annual meeting of the Cotton-Textile Institute will be held Wednesday, Oct. 18, at the Biltmore Hotel, New York. Election of directors will take place at the morning session. Present and prospective developments under the code will be discussed by President George A. Sloan. B. B. Gossett will talk on limitation of plant expansion in the industry; Harry L. Bailey on the export and import situation under the code; and Ralph E. Loper on "Present Day Relationships Between Cotton Textile Costs and Prices." Exhibits will show new ideas for store window and department displays of cottons.

•

Prices Steady; Volume Fair

Gray goods business at the close of September was at steady prices and of moderate volume. Second hand offerings were not reported to be of consequence. Trade in finished goods has been improving, a trend shared not only by the finer lines for dresses and shirtings but by the coarser yarn dyed goods such as denims, flannels, tickings, coverts, etc. Volume as a whole for September was fair.

Price on 64x60s, 5.35 yd., at end of September was 6¾c., a slight hardening from the figure current at the start of the month but still below the higher levels current in July. For 4 yd. 80 squares, 9¼c. was the figure, a ¼c. gain for the month. In sheetings the 4 yd. 48 square at 7½c. was slightly under the levels of Sept. 1.

•

Cotton Consumption and Spindle Activity Decline

Cotton spinning operations showed further decline in August, according to figures compiled by the Bureau of the Census, which reported spindle activity for the month at 106.7% of single shift capacity, as compared with 117.5% for July, 129.1% for June, and 72.4% for August, 1932. In order that statistics may be comparable with those of earlier months and years, it is explained, the same method of computing the percentage of activity has been used, despite the fact that the cotton textile code limits the operation of productive machinery. There were 25,884,704 cotton spindles active during August. Cotton consumption for the month was 588,570 bales, as against 600,143 bales for July, and 404,497 bales for August of last year.

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Loans to Finance Tax

Requirements and conditions for R. F. C. loans for the purpose of paying processing taxes and floor stock taxes, as authorized in Section 19 of the Agricultural Adjustment Act, have been announced by the Reconstruction Finance Corp., as follows:

1. Loans will be granted only to prevent the "immediate undue financial burden" which the taxes may impose and, since the payment of such taxes may be postponed by the Secretary of the Treasury for a period not exceeding 90 days, it is not contemplated that R. F. C. loans will be made except in the event that postponement of payment for the full 90-day period has been obtained.

2. Loans must be fully and adequately secured by acceptable warehouse receipts on commodities which are the basis of the tax, or on warehouse receipts on other acceptable commodities, or other forms of security customarily accepted by banking institutions.

3. Loans will be made for the normal turn-over period of the commodity, not to exceed six months, but applications for renewal will be considered in the event that the turn-over period exceeds six months. The rate of interest on this class of loans has been fixed at 5% in the current rate schedule.

4. Application forms for loans, with which instructions are provided, may be obtained from the loan agency of the R. F. C. serving the territory in which the applicant is located. If the application is approved, the applicant will be so advised, and disbursement of the proceeds of the loan will be made by the R. F. C. in the form of a check payable to the order of the Collector of Internal Revenue.

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Percale Price War

Price competition flared in the percale field early in October; an 80-square branded construction was reduced from 17c. to 14½c. by a leading converter. The move is interpreted as a challenge to the corporations and vertical-finishers whose basic prices have customarily been several cents under converters'. The corporations are understood to have receded from 14 to 13½c. but with 80 squares in the gray at 9¼c., the margin of approximately 4c. for the corporations is called inadequate to cover discounts, selling cost, and cost of designs, engraving and printing. Outcome may be control through NRA to prevent damage.

•

Oct. 1 Crop Estimate

Government cotton crop estimate as of Oct. 1 (issued Oct. 9) was 12,885,000 bales, an increase of 471,000 bales from its Sept. 1 estimate. It was 300,000 bales above Cotton Exchange estimates and 600,000 bales above private reports. Prices on futures were strong after the report but sagged somewhat on the following day.

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R. Grady Rankin Heads Combed Yarn Men

Southern Combed Yarn Spinners Association, formerly known as the Gaston County Textile Manufacturers Association, held its annual meeting in Gastonia, N. C., Sept. 15, and elected new officers, as follows: R. Grady Rankin, Gastonia, president; Arthur K. Winget, Albemarle, N. C., first vice-president; and W. H. Suttenfield, Statesville, N. C., second vice-president. Fred M. Allen, of Gastonia, is secretary-treasurer. The following new directors were elected: T. H. McKinney, Carl A. Rudisill, S. P. Stowe, and Arthur M. Dixon.

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Carolina Yarn Outing

Recreation and entertainment were enjoyed by members of the Carolina Yarn Association and their guests at

the fourth annual golf tournament, held at Graystone Inn, Roaring Gap, N. C., Sept. 15 and 16. Following two 18-hole rounds of medal play, the banquet was held Saturday evening, when trophies were awarded to the winners.

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Cotton Fabric Walls for Light-weight Houses

Summer houses consisting of portable "room units" in which unbleached cotton sheeting, coated with cellulose "dope" as applied to airplane wings, is used for exterior and interior walls, have been developed by Stanley W. Nicholson, Milwaukee, Wis., according to announcement by the Cotton-Textile Institute. The new type light-weight houses are supported by wood framework over which the cotton sheeting is stretched.

•

New Towels Attractively Shown

Lines of towels were opened early in September by such firms as Cannon Mills, Cone Export & Commission Co. (Haynes Towels), Southeastern Cottons, Inc. (Moor brand towels), etc.

The Cannon display was notable in that an attractively planned exhibition was set up in a ground floor store adjacent to the firm's office on Worth St. where towels and other household cottons were shown in a manner to suggest window-trimming and retail displays. The towel line was styled by Virginia Hamill and a new body color, butter, introduced. This is not so much a frankly colored towel as it is a variation of the standard white body helpful in bringing out border designs. Deeper colors have largely replaced pastels and new border effects in a wide color range introduced. There are 15 new lines and the width of the finer numbers has been increased from the usual 22 and 24 in. to 26 and 28 in.

•

Cotton Mill News

Dwight Mfg. Co., Alabama City, Ala., has completed the installation of 15 single process pickers purchased from the Whitin Machine Works.

Lullwater Mfg. Co., Thomson, Ga., is being re-equipped for the manufacture of cotton yarns and is expected to begin operation within the next few weeks.

Maverick Mills, Inc., East Boston, Mass., has awarded contract to Williams & King for alterations to the mill.

Kilburn Mills, New Bedford, Mass., has let contract for electrifying their Mill No. 2 which has been closed for several years. It is concluded that plant will be started up again. Mill No. 1 has been running at capacity.

Asheville (N. C.) Cotton Mills are installing new boiler and stoker equipment, purchased from the Combustion Engineering Corp., at a cost of about $7,000.

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Cannon Mills, Plant No. 8, China Grove, N. C., is installing 36 new Draper looms.

Cliffside (N. C.) Mills are replacing old type water wheels and rope driven transmission with modern water turbines and vertical generators to completely motorize the plant. The generators will furnish 1,720 of the 3,000 horsepower consumed in operation of the plant. Duke Power Co., or the steam plant of the mill, will furnish the additional power. James Leffel Co. built the turbines and Westinghouse the generators.

Faytex Mills, Inc., Fayetteville, N. C., referred to in last issue, will spin carded and combed yarn 30s to 50s single and ply, supplied on skeins, tubes, warps, cones and beams.

American Combed Yarn Corp., Clara Mill, Gastonia, N. C., has completed a new unit, to be equipped as a finishing department. Machinery has been removed from a Bessemer City mill.

Lincolnton (N. C.) Thread Co. has been organized with Julius Bayers, New York, as president and selling agent, and W. Ralph Armstrong, Gastonia, N. C., as treasurer and general manager. Company will operate the old Wampum Mill on spinning, finishing, bleaching and dyeing of thread yarns.

Deep River Mills property, Randleman, N. C., including two textile plants, were sold at auction on Sept. 25 for a little less than $90,000 subject to confirmation. Mill No. 1 was purchased by E. W. Freeze and associates of High Point, N. C. Mill No. 2, sometimes styled the Naomia mill, was bought by Robert L. McElroy of Charlottesville, Va.; Robert L. Huffines, Jr., of Clayton, and associates. The Cox mill dam property was sold to the Sopona Cotton Mills, Asheville. The properties included 21,840 spindles and 725 looms.

Valdese (N. C.) Mfg. Co. has lately had a complete water filtration plant installed by Hungerford & Terry.

Irene Mills, Gaffney, S. C., will be offered at auction sale at Gaffney on Oct. 17 by order of the receiver. The upset price is reported at $109,000.

Chiquola Mfg. Co., Honea Path, S. C., is installing 100 new looms.

Jackson Mills, Iva, S. C., recently installed 95 Model E Draper looms, while 55 looms of similar type were installed in the Wellford (S. C.) plant of the same company.

Spartan Mills, Spartanburg, S. C., has reecntly installed a large number of WAK pick counters.

Clinchfield Mills, Marion, N. C., will construct addition; J. E. Sirrine & Co., Greenville, S. C., engineers.

Mooresville (N. C.) Cotton Mills, which have been operating under a receivership, were recently returned to the stockholders under a mutually satisfactory reorganization. New officers of the company are: Robert Lassiter, chairman of the board; W. B. Cole, president; and John Matheson, general manager.

Middlebrook Cloth Mill, Newton, N. C., completed the installation of new equipment in the newly constructed addition to the plant, and this machinery was put into operation about the middle of September.

Steele's Mills, Rockingham, N. C., is constructing a two-story addition, combination warehouse and cloth room; Price-Smith, contractors.

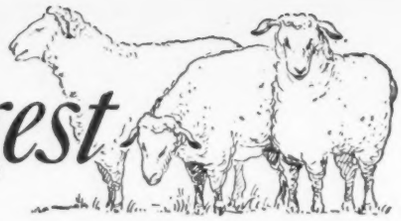
Columbia Narrow Fabric Co., Shannock, R. I., contemplates rebuilding of power house, recently destroyed by fire caused by lightning.

Shelbyville (Tenn.) Mills, Inc., were recently purchased at public auction by the Hunter Mfg. & Commission Co., New York, N. Y., principal creditor of the bankrupt mill, for $233,320.

Sherbrooke (Que.) Cotton Co., Ltd., is installing 100 new model X cotton looms purchased from the Draper Corp.

TEXTILE WORLD'S

Wool Digest



NOW that a permanent organization has been developed again in the National Association of Wool Manufacturers, it would seem to be in order to consider the revival of "Wool Week" as the focus for better merchandising in this division of the industry.

This particular type of promotion has produced excellent results in the past. It also has been successful in the cotton industry. Its utilization is all the more necessary in wool goods, since per capita consumption has decreased steadily, and stimulation is needed.

Such an effort not only helps the industry show its wares; it induces manufacturers to improve the style and quality of the goods they have to show.—*Editor.*

Mill Agents Cautious in Approach to 1934

Men's wear mills are selling to the end of the year, and some few which are going beyond that turning point are regarded as reckless. The usual apprehension over how higher prices will affect consumer buying has been extended to the spring season as that will be proportionately as much over fall as fall is over last spring levels at retail. Merchants recognize that there is good consumer enthusiasm at present for buying but that it may be a bit worn out when the full advance is felt next spring.

Another influence which is being given study is the likely drive toward inflation when Congress meets in December. That point is regarded as the critical one in setting the 1934 stage and manufacturers are cautious in coming up to that date with their business in the most flexible state possible to protect themselves against an adverse turn or to take advantage of a favorable one.

•

Credit Situation Holds Key to Future

Payment of October bills by clothiers is to be regarded as an index of a most important side of the current situation in men's wear fabrics. The sharp rise in price of goods has forced clothiers to commit themselves for payments considerably beyond what is justified by their capital or current receipts. The extent to which bills can be met when due will disclose how the financial mechanics of the recovery situation are working. If mills or their agents have to carry a fair proportion of their customers it will influence the attitude toward future orders by those customers and put the brakes on the situation. If bills are generally met, the problem will be deferred until consumer acceptance of the new high levels next spring is established. In general inventories both at first and second hand will be up and cash down as compared with the situation a year ago.

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Women's Fabrics Need Further Stimulus

Women's wear lines were dull through September since there was little evidence of speculative interest among buyers and movement of made-up garments to the consumer was delayed by lack of seasonable weather. The most saleable line for coatings was tweeds and these held some interest through the month while other coatings were quiet. There was only casual interest in light-weights for dresses.

•

Tops at New High

The steady up-swing of wool tops has continued to new highs while many other commodities have not climbed back to their levels of last June and July. The high for September in Wool Top Exchange future was 108.5c. for the March contract. Spots at Boston were held at 111.0 from Sept. 22 to Sept. 29. Trade was quieter near the close of the month and reports of small declines came from the foreign markets at Roubaix and Bradford. To compare with the spot price of $1.11 it is interesting to note that similar figure on June 30 was 95½c., and on March 31 was 58c.

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Wools Still Move Upward

Throughout September prices on all wools continued their upward movement, relatively slow in grease wools but brisk in scoured and pulled wools. The low point was seen in July of last year, the territory group average then standing at 30.8c., whereas at this time it is approximately 75c., a gain for the period of 143%. The gain in the fleece group for the same period was 151%. Combing wools in September showed gain over August of 4%, territory group gained 3.6% and fleece wool group 4.1%. The market during the last three months is shown herewith:

	Territory (Clean)	Fleece (Grease)
July	67.7c.	32.3c.
August	72.3c.	34.0c.
September	75.1c.	35.6c.
Oct. 2	76.1c.	36.7c.

Supplies of domestic wool, approximately 100,000,000 lb., are so small in view of probable consumption that the situation furnishes a basis for the belief that early contracting may occur for wool on the sheep's back at high competitive prices. This is deplored by conservative members of the trade.

Domestic wools have been strengthened considerably by keen demand at the opening of the new seasons in several foreign primary centers. Domestic fine wools at this time have a preferential advantage of about 7c. per clean pound over similar types of foreign wool.

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American and Others Open Tropicals

The American Woolen Co. started its season in tropicals for 1934 around mid-Sepember with an informal showing. Samples and prices were disclosed as the trade came in to buy. It was said that base prices ranged from $1.27½ to $1.87½. Other houses also have initiated the season in tropicals without formal showings.

Goodall Co. has priced Palm Beach clothing for 1934 and the suggested retail price on coat and trousers is $18.50, a rise of about 50% from a year ago. Introduction of mohair into warp is said to give the new goods enhanced crease-resistant properties.

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Half-Blood Lines Over $2.00 Per Yard

Approximate price levels for spring goods near the end of September were $1.85 for three-eighths blood fabric of average weight, $2.05 for half-blood lines, and $2.52½ for full 64s quality.

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Urge Promotion Work

In an open letter to the president of the National Association of Wool Manufacturers, Arthur Besse, the firm of Eavenson & Levering, Camden, N. J. urge prompt action by the Association in initiating a market research and promotional campaign to forward the selling of wool manufacturers. That firm is also going ahead with its own efforts toward a "Wish It With Wool Christmas."

Clothiers Near Opening of Spring Lines

Allotment of men's wear spring lines is current in some offices not only to permit mills' product to be fairly distributed among all customers, but to protect the seller against speculatively inclined buyers who would overdo the situation. There have been few formal spring openings, most sellers merely taking orders which were pressed upon them and when they had sold as much yardage as desired, lines were withdrawn to be reopened at an advance a week or so later for the release of a further quantity.

Clothiers are laying plans to open spring garment lines late this month or early in November. There will be evident fairly widespread substitution of lower grade materials in some of the popular priced lines where fine goods were used only six months ago. Cotton warp numbers have met greater interest which is evidence of clothiers effort to show something in the lowest brackets. The fact that cut-make-and-trim costs are considerably higher under the code makes it uneconomical to use any but the cheapest tailoring on the low end merchandise.

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Spring & Rullman to Sell Angus Park Fabrics

The firm of Spring & Rullman has been formed by William C. Spring, of Geiger & Spring, and Chas. P. Rullman, of H. M. Stockton & Co. It will operate as a department of H. O. Wilson Co., and selling the Angus Park fabrics made by Airlie Mills, Assawaga Co. and Angus Park Mfg. Co.

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Stursberg, Schell Liquidating

Steps toward liquidation of the firm of W. Stursberg, Schell & Co., wool goods, New York, are now in process, and Herbert Stursberg, of the Stursberg Estates, explained that the firm went out of existence with the death of Albert Stursberg, sole surviving partner, and the executors found it advisable to divest themselves of the investment. Germania Mills, largely owned by the firm, is being temporarily factored by the executors; Livingston Worsted Co. is being factored by Commercial Factors and other accounts are arranging to establish elsewhere. Edward Britt is in charge of liquidation.

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1933 Domestic Clip 1% Increase Over 1932

An increase of 4,000,000 lb., or 1%, in the 1933 domestic wool clip over 1932 is estimated by the Department of Agriculture, despite decrease in the number of sheep shorn. Wool shorn in 1932 amounted to 344,354,000 lb. and the 1933 estimate is 348,194,000 lb.

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What If They All Wore Like This?

The latest entry for the title of the oldest machine-made blanket, which has been in continuous use, is noted in *Making the Grade—With Wool,* published by Eavenson & Levering. The Fairbault (Minn.) Mill Woolen Mill Co. was recently visited by one of the townsfolk bearing a single blanket that had been in continuous use in her household for 60 years. The mill was started in 1865 and the blanket made eight years later. The previous record for a machine-made blanket was 46 years.

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Wool Growers to Meet

The annual meeting of the National Wool Growers Association will be held in Salt Lake City, Utah, on Jan. 16, 17 and 18, 1934.

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Wool Mill News

American Woolen Co. has sold to Connecticut Cordage Co., Inc., the Whitestone Mills, at Danielson, Conn.

Ardmore Corp., Norwich, Conn., is a new corporation formed to manufacture and deal in woolen rags, clips, wool, etc. Authorized capital is $50,000, with $1,000 paid in. Incorporators are G. B. Gaskell, B. G. Cody and William Stelzner.

Saxton Woolen Corp., Yantic, Conn., has completely electrified its mill, installing a dynamo and other equipment.

Toulson Yarn Mills, Inc., Bridgeport, Conn., have organized with the following officers: President, William L. Belknap, Sr.; vice-president, Harry Toulson; treasurer, Clifford L. Mason; secretary, William L. Belknap, 3rd.

J. M. & E. M. Abbot, Lowell, Mass., purchased recently by the Abbot Worsted Mills, Graniteville, Mass., has installed 32 additional spinning frames purchased from the Passaic (N. J.) Worsted Spinning Co.

Hamilton Woolen Co., Southbridge, Mass., has work under way for a new modern brick office unit. F. X. Laliberte & Son, Inc., Southbridge, has the general contract.

Englishtown (N. J.) Rug Mill, owned by the Rooney & Ely Co., has been leased to John D. Harris Co., New York, N. Y., which will remodel and equip for new rug mill.

F. C. Huyck & Sons, Albany, N. Y., have taken on 225 new workers and the plant is now running near capacity.

Roy Woolen Mills, Watervliet, N. Y., have been overhauled and considerable new machinery installed after a long period of idleness.

Consolidated Worsted Corp., Providence, R. I., has been chartered by Arthur H. Feiner, Providence, and associates, with capital of 500 shares of stock, no par value, to operate a local mill.

Eagle Worsted Co., Providence, R. I., has been formed by Samuel Presel, 167 Prospect St., Providence, and associates, to operate a local mill.

Rochambeau Worsted Co., Providence, R. I., is building a 1-story concrete addition 80x85 feet to a store house on King Street. O. D. Purington Co., Inc., is doing the work.

Appleton (Wis.) Woolen Mills will erect a 4-story addition to main mill building, 56x136 ft., and reconstruct their power plant at a total cost of $75,000.

United Sheep & Wool Growers' Association, Calgary, Alta., J. B. Trotter, secretary, has tentative plans for establishment of mill for manufacture of woolens to cost over $50,000, with necessary equipment.

Butler Woolen Mills have completed construction of another extension to its mills in Strathroy, Ont., Canada. The addition to be for warehouse service.

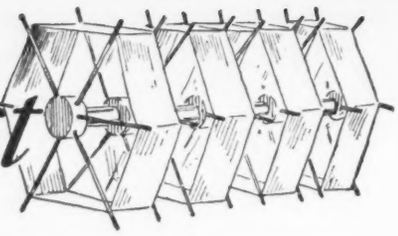
H. Holdroyd & Son have leased floor space at 176 John Street, Toronto, Canada, where they will establish a Bradford-system worsted-yarn spinning plant. Machinery has been purchased from the United States and is now being installed. V. C. Holdroyd will be the manager.

Eastern Textiles, Ltd., have decided to establish a plant in New Glasgow, N. S., Canada. This firm's woolen mill, located at Eureka, near New Glasgow for some years, was destroyed by fire early last April.

Saskatoon (Saskatchewan, Canada) Woolen Mills, Ltd., has been organized with a capital of $20,000, to manufacture wool blankets and yarns for farmers on a custom basis.

TEXTILE WORLD'S

Silk Digest



THE resignation of James Goldsmith as president of the Silk Association of America leaves that organization once more leaderless. Mr. Goldsmith stepped into the breach temporarily, against the advice of his physicians, and for a limited time only. His act was a distinct public service.

For the future, we imagine—and hope—that the association intends to secure a full-time paid executive. The demands which the presidency of a trade organization places upon an individual, under present conditions, are far too heavy to be absorbed by one who also has his own business to manage. This fact has been realized by several branches of the textile industry—and we expect to see increasing recognition of it.—*Editor.*

Goldsmith Resigns Silk Ass'n Post

The resignation of James A. Goldsmith, as president of the Silk Association of America, to become effective as soon as the reorganization of the association into a federation of separate textile groups is completed, has been submitted to the association's board of managers, it was announced Sept. 28. Mr. Goldsmith took the post in July with the understanding he would serve for 90 days; this period expires Oct. 18, by which time he expects the reorganization work to be consummated.

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Silk Strike Chronology

The strike of silk weavers, finishers and throwsters, which spread through three states during September, tied up 25% of the broadsilk industry and crippled the Paterson, N. J. division of the finishing industry, continued into the current month with many settlement plans pending, but no actual end in sight. Representatives of Federal agencies have conferred with strikers' spokesmen and employers frequently, but to date have made little progress.

The strike affects weavers, finishers and throwsters in New York, New Jersey and Pennsylvania. Estimates placed the total of workers idle on Oct. 1 at between 35,000 and 40,000 and the loss to industry goes well into the millions.

A chronology of the triple-industry tie-up follows:

July 17—Silk industry goes temporarily under cotton code; 40-hour week, minimum wage of $13 North and $12 South.

July 23—Silk and rayon dyeing and printing code becomes effective temporarily under Executive Order; provides wage minimum of $18 for males and $14 for females for 40-hour week.

Aug. 31—Strike by broadsilk workers in Paterson, N. J. district to force action on silk code and to obtain higher wages called by Associated Silk Workers, a branch of the American Federation of Silk Workers, which is affiliated with the A. F. of L.

National Textile Workers Union, allegedly a Communistic body, urges members to support A.S.W. in strike and to leave looms.

Sept. 2—Leaders of Associated Silk Workers defeat efforts of the radical union to get control of strike. Jacquard workers in Paterson, called out.

Sept. 5—National Textile Union calls strike of bleachers, dyers, finishers and printers at Weidmann plant of United Piece Dye Works, Paterson, N. J.

Labor leaders and employers confer on strike in Washington.

Sept. 6—American Federation of Silk Workers calls strike of weavers in Allentown, Pa. mills. Silk throwsters in 15 out of 20 Paterson, N. J. mills join strike; mills closed.

Sept. 7—United Textile Workers Union, dyers' division of Associated Silk Workers, attempts to get control of situation at United Piece Dye Works plant; employees of six United plants now out.

Sept. 8—Representatives of Associated Silk Workers and the Silk Manufacturers' Association of Paterson, N. J. confer with National Labor Board members on silk weaving strike. Most of Allentown, Pa. silk fabric mills reported closed by strike. Attempt is made to effect sympathetic strike of silk throwsters in Bethlehem, Pa. John A. Moffitt, of U. S. Department of Labor confers with representatives of Institute of Dyers and Printers in Paterson. Moffitt says he will deal only with United Textile Workers Union and not with the radical National Textile Workers Union. Eighteen dyehouses with 6,000 workers now at standstill as result of activities of radical organization.

Sept. 11—United Piece Dye Works closes Lodi (N. J.) plant; 1,500 at National Silk Dyeing Co. plant quit work, also 1,200 at Textile Dyeing Co. plant. Total now out 7,500, in Paterson district. New York silk printers and dyers respond to United Textile Workers strike call; 4,000 out.

Sept. 12—United Textile Workers file wage demands; ask $18 minimum for unskilled, $44 for skilled workers on 30-hour week. Employers reply that it is impossible to meet these demands.

Sept. 13—Continuance of strike seen by leaders as threatening Paterson dyeing industry; possibility that New England, with 400 printing machines, may take trade away causes apprehension. Silk code hearing opens at Washington; adjourns pending steps to reopen rayon weavers' hearing, with aim of harmonizing code provisions of silk and rayon weaving industries. This move is contingent upon a truce being declared in the silk strike.

Sept. 14—Conference in Washington initiated by National Labor Board indicates early truce in silk strike on agreement that weavers will receive about $24 weekly. Plan to reopen rayon weavers' code dropped.

Sept. 15—Dyers strike situation unchanged, awaiting result of hearing on code of National Association of Finishers of Textile Fabrics. This hearing is scheduled for Monday, Sept. 18. Robert R. Salembier, of Institute of Dyers and Printers states he has never received any demands from the National Textile Workers Union, leftwing organization, but that he will discuss them if, and when such demands are presented. He pledges 100% cooperation with the A. F. of L. union.

Sept. 18—Temporary agreement which was approved by labor leaders and manufacturers, Sept. 14 at Washington, is rejected at union meeting in Paterson, N. J. Jacquard weavers reject 8 to 10% increase offered by Paterson manufacturers, and manufacturers offer new wage scale to permit average earnings of more than $25 weekly.

Sept. 18—Officers of Associated Silk Workers, at Paterson, N. J., mass meeting make public weavers' demands as follows: $36 weekly minimum; 30-hour week; two-loom system; no night work and no discrimination; recognition of union.

Sept. 20—Broadgoods group of Silk Association asks Deputy Administrator Whiteside for immediate approval of silk code presented Sept. 12. Current estimates place dyers' strike loss at 2,500,000 yd. per week, totalling dollar loss of $12,000,000 monthly; more than 50% of this involves acetate or other synthetic weaves; New England mills have been experimenting on this work. Paterson jacquard manufacturers form own group known as Master Weavers Association. Dyers and Printers Institute sends resolution to General Johnson urging early settlement of the dyers' strike.

Sept. 27—All 23 silk mills in Allentown, Pa. closed down on order of Mayor Lewis, following riot in which F. L. Ducoudray, president of Pyramid Mills, was injured. Labor leaders characterized shut-down as victory. It is understood mills will remain closed until strike is settled.

Sept. 28—Paterson broadsilk strike enters fourth week. First break comes in dyers' strike when Cretona Print Works, Clifton, N. J., reopens, departments being manned chiefly by new operatives who have accepted old wage scale. Three Paterson ribbon mills resume operations on employers' agreement to 25% wage increase. Silk strike affecting 3,000 workers in Easton, Pa., which followed Allentown walk-out, appeared near settlement. O. M. Graves, of Easton, was named mediator to effect strike truce pending development of a code which would protect rights of workers and employers in future operations.

Sept. 29—National silk strike headquarters, Paterson, N. J., claims that, with two exceptions, the broadsilk strike has been 100 per cent effective in closing mills in Pennsylvania, New York and New Jersey.

Oct. 2—Proposal by Otto M. Graves, of Easton, Pa., that Easton, Phillipsburg and Paterson (N. J.) mills be reopened and strikers resume work on truce basis, was rejected by American Federation of Silk Workers.

Oct. 3—Considerable damage was done at the Crew Silk Finishing & Piece Dye Works, East Paterson, N. J., when 500 strikers raided the plant, injuring a foreman.

Oct. 7—Silk manufacturing industry code signed by President Roosevelt. Industry leaders express hope this will aid toward early end of strike, since, it is expected that under code the strike will come directly in the province of National Labor Board.

Oct. 10—Three hundred skilled workers signed agreement with 15 jacquard mills in Paterson, receiving 15 to 40% wage increase, and resumed work. Important conference which aimed to reconcile strikers' demands with maximum possible concessions of employers, was begun in New York, with Senator Wagner, chairman of Labor Board, presiding. Numerous Senators, Representatives and leaders of capital and labor attended. Recessed at 2 a.m.

Oct. 11—Paterson jacquard workers cancelled agreement and resumed strike, on union plea that all branches should effect peace together. New York conference, under Senator Wagner's leadership, was continued, and there were strong indications that an early settlement of the entire strike would be effected. Union leaders stressed need for designation of Government official who would assume permanent responsibility for carrying out of any agreement reached.

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Fabric Sales Leap 90%

The total broadsilk yardage sold during July was 90% above that for the same month in 1932, the Silk Association of America, Inc., has announced. Stocks held by manufacturers on July 31, were 34% below the same day in 1932. Sales for July were 2.4% under June sales. Stocks on July 31 were 8.1% lower than on June 30.

Importers See Silk Outlook as Cloudy

Raw silk importers entered October in a bewildered frame of mind. While September itself had been rather encouraging, the silk strike and the increasing competition of synthetic fiber, threatened to prove serious obstacles during the current month. Raw silk levels advanced about 5c. during September, and the tone of the market was moderately firm, this being due more to strength in the Japanese market than to domestic conditions. Importers reported scant interest among broadgoods mills; weavers orders were small and for early shipment. Hosiery knitters showed more confidence, especially the Southern contingent; these mills appeared to see inflation ahead and were willing to place substantial future business provided importers would meet their terms.

Raw silk stocks of 20/22s have been plentiful, but New York importers reported a decided drop in their supply of 13/15s. There is little prospect of substantial advances in silk levels this month; indeed importers will be glad if silk holds its gains to date. Importers see prospects for the spring season as depending very largely upon settlement of the silk strike.

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Strike Stimulates Fabric Demand

Curtailment of broadsilk output due to the strike had a healthy reaction on the New York fabric market, according to early October opinion among leading houses. While a certain amount of price-cutting persisted, levels held firm on the favored fabrics, and these are being disposed of rapidly at a fair profit. Fall deliveries were nearing their peak at the end of the first week of this month, and silk firms were completing plans for the opening of their resort lines. Most of these lines are scheduled to be shown between Oct. 15 and Nov. 1.

Current fabric sales lean strongly to velvets, mossy crepes and cantons. The unusual color effects which include a wide range of browns, blackberry and Chinese reds and greens, have done much to stimulate demand. The call for metallic fabrics started earlier than usual this season. Transparent velvet mills on Sept. 30 announced price reductions of about 27c. per yd.

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Testing Houses Organize

An association of textile-testing laboratories is being formed as an affiliate of the new Textile Institute, Inc. The organization committee consists of J. J. Reutlinger, of Hatch & Reutlinger, New York, chairman; L. A. Olivieau, of the United States Testing Co., Hoboken, N. J.; and Harry Levine, of the Silk Grading & Testing Laboratory, New York.

Provisions of a trade-practice code which will be submitted to NRA officials in the near future were unanimously approved by the textile laboratory group present at a recent meeting. Among the members of the association are AAA Silk Laboratory, Inc.; American Testing Company, Inc.; Ernest Barber; James Chittick; Cox & Fuller; Lillian Edgerton, Inc.; Dr. Jos. F. X. Harold; Hatch & Reutlinger; Industrial By-Products & Research Corp., Arthur D. Little, Inc.; North American Laboratories; Pease Laboratories, Inc.; Silk Grading & Testing Laboratory, Inc.; United States Testing Co.; and Adolph J. Winkler.

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Recovery of U. S. Trade, China's Aim

An outline of plans by which China hopes to recover part at least of her silk trade in North America, was made public last month by T. S. Miao, Chinese silk technician, in an interview at Vancouver, B. C. Mr. Miao is director of the raw silk testing department of the Shanghai Bureau of Inspection and Testing of Commercial commodities. Stating that China today has only one-tenth of the silk business in North America that it had in 1900, he said the country was determined to push its raw silk sales here on two main points: First, improved testing and higher qualities of silk; and, second, more modern methods of export promotion.

Mr. Miao's statement is particularly significant in view of the announcement Sept. 7 by U. S. Consul Paxton, Canton, China, through the Department of Commerce, that raw silk shipments from Canton to the U. S. had dropped 42% in the last crop season.

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Velvets Featured at Paris Openings

Many of the intricate velvet weaves shown lately in Paris, says the DuPont Fashion Service, are made of rayon. Some have a push-like finish, others a novel pile.

There are a number of new rayon crepes, some with a tight weave, others having a spongy surface. Most successful is crepe Fifine, whose surface is quite plain.

Lames have an important place in this collection. Some metal ribbon effects are used on rayon satin, or dull velvet, or on gauze.

A strong velvet group is found in the new collection at Chatillon, Mouly-Roussel. The soft-piled rayon velvet Nabab is still being shown. There are also a number of fancy rayon velvets with ribbed effects, such as Signoore, with chiselled stripes, with mossy surfaces, with squares and dots in relief, and with boucle surfaces.

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Silk Mill News

Wills-Bosch Silk Co., Paterson, N. J., has been organized by John Wills, 74 Gray St., Paterson, and associates, to operate a local mill.

O'Melia Silk Mills, Fonda, N. Y., have been leased to the **Kingsboro Silk Co.,** of Gloversville, and are running day and night on silk and rayon fabrics.

H. R. Mallinson & Co., New York, report a net loss for the six months ended June 30, 1933, of $190,688 compared with a net loss of $249,847 for the similar period in 1932.

Onondaga Silk Co., Ogdensburg, N. Y., plans a renewal of the lease on its plant and work of removing equipment to Easton, Pa., has been stopped.

Atlas Silk Mills of Virginia, Inc., Martinsville, Va., recently organized as a subsidiary of Atlas Mills, Inc., New York, N. Y., with capital of $50,000, has taken over former local mill of the Martinsville Silk Corp. Mill is being modernized and improved, with production started on silk crepes.

Angle Silk Mills, Inc., Rocky Mount, Va., recently purchased a new rayon slasher from Cocker Machine & Foundry Co., Gastonia, N. C.

British-American Silk Mills, machinery and general equipment located in the firm's mills at Montreal, Que., will be moved to Granby, Que. It is planned to increase capacity by an additional 50 looms and to add a silk throwing department.

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TEXTILE WORLD'S

Rayon Digest

ANYONE who has followed the "Rayon Mill News" column in this department recently must have been impressed by the number of programs of plant modernization and improvement, and for the replacement of obsolete equipment, which synthetic yarn producers have been initiating.

As a matter of fact, this reflects a policy which is typical of this particular division of the industry. Partially, it is due of course to the necessity imposed by the rapid development in methods of synthetic yarn production during recent years—and to consequent rapidity of obsolescence. To some degree, however, it is due—we are convinced—to a greater realization, on the part of this branch, of the need for modernization than exists generally in textile manufacture.

At this particular time, when plant improvement will mean the difference between profit and loss, and when stimulation of the capital goods industries is so vital to our national recovery, we offer the example of the rayon industry's attitude as an object-lesson for other divisions.—*Editor.*

Yarn Price Rise Seen as Unlikely

Suggestions heard in some parts of the rayon market this month that the recent very active demand for yarn might bring a price advance toward the end of the year, received scant support among the yarn industry's leaders. It was pointed out that the present profit margin, while rather thin, had been greatly helped by the spirited buying, and the actual return on investment at the end of September was declared to be "satisfactory." Any price advance would, of course, hinge largely upon silk and cotton levels, indeed, some yarn producers viewed the differential as the main element in determining future rayon prices. If silk and cotton prices registered important gains in the final quarter, it is understood that the synthetic fiber group will seriously consider the possibility of a price advance.

Meanwhile, rayon was selling at high pressure throughout September, with no spot orders being accepted. During the third week most producers had heavy orders booked to Dec. 1, and at the beginning of the current month there were indications that December, usually a slow month, would be exceptionally active this year. There is a pronounced shortage of synthetic yarns, any no early relief of this tightness is in sight. Producers are eminently satisfied with the situation at this end, and regard the outlook as healthier than it has been in several years.

The new importance of synthetic yarn fabrics in the high fashion and quality fields is believed to be a major influence in making for the strong demand. Producers consider this as perhaps more significant than the price differential of competitive fibers.

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Two Labor Problems

Labor restlessness was manifest in two rayon plants during the latter part of September. A number of workers walked out at the Woonsocket (R. I.) Rayon Co. plant on Sept. 18, when the management refused demands for a 15 to 20% wage increase. Company officials estimated the number of strikers at between 40 and 50, while union representatives claimed 250 were out. The company employs about 300 workers, and it was reported the firm would close the plant indefinitely if enough workers were not procurable. The proposal for a strike at the New Bedford (Mass.) Rayon Co. plant was voted down by the operatives, it was announced Sept. 27. In vetoing the strike, the employees authorized their representatives to continue negotiations with the management regarding wages and the other questions at issue.

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Japan's Output Rises

Expansion plans now definitely approved, or nearing that point, are expected soon to bring Japan's annual output of rayon to more than 100,000,000 lb., according to dispatches which reached the U.S. Department of Commerce, Sept. 15. The dispatches added that Japan is rapidly solidifying her position as the second largest rayon producing country, but also pointed out that Japan remains dependent on foreign countries for the raw materials, such as pulp. Reports from Germany indicated an increase in imports of rayon from Japan; this trend is significant, as German imports of rayon from all other countries show a decline.

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Weavers May Form Converters' Group

Unanimous approval of the plan to establish a converters' division of the National Rayon Weavers' Association has been expressed by rayon converters answering a questionnaire recently sent out by the association. The total of answers received, however, has not been sufficiently large in proportion to the number of rayon converters to warrant taking final steps toward organizing the division. It is hoped that later response may indicate strong enough sentiment to justify such action.

The association questionnaire which was sent out at request of numerous converters solicited opinions on the plan to form a group which would "constitute a recognized agency to represent the distributors of finished rayon fabrics in the various problems of distribution, correction of trade abuses, arbitration, and the development and administration of a code of fair practice."

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More Yarn Firms Ban Discount Privilege

General adoption by rayon yarn producers of the ban on allowing discounts for anticipation of payment on invoices was indicated last month, when the Viscose Co., Industrial Rayon Corp., Tubize Chatillon Corp. and the New Bedford Rayon Corp. made announcements to this effect. These companies followed the lead of the DuPont Rayon Co., which firm had previously adopted the policy of ending this privilege. Hubert D. Kernan, treasurer of Skenandoa Rayon Corp. announced Sept. 27 that his firm also would drop the anticipation provision. The withdrawals apply to shipments made on or after Oct. 1.

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Vote Issue Delays New Yarn Association

The problem of determining voting power of member companies continues a major obstacle to the plan for forming an association of rayon yarn producers. At the end of September doubt

was expressed that the new organization would get formally under way before the latter part of this month. Numerous meetings of the organization committee, of which S. A. Salvage, president of the Viscose Co., is chairman, were held, and various bases for fixing voting power were considered. The proposal that a producer should have one vote per plant rather than one vote per company was understood to have excited some approval, but spokesmen for the organization committee were far from sure that this plan would be adopted.

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Weavers Name 3 Code Committees

The National Rayon Weavers' Association on Sept. 27 announced the appointment of three special committees which will handle production and distribution problems arising out of NRA code operation; the committees will make such recommendations for amendments to or other changes in the code as they may find would prove helpful. Committee chairmen are: Staples and Linings, E. N. Morris; Dress Goods, William Klopman; and Finished Goods, A. L. Green. The association announced that its first annual meeting would be held Oct. 31 at Hotel New Yorker, New York.

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1934 Swimsuits Highlight Synthetics

Early reports of winter resort fashion trends indicate that synthetic yarn bathing-suits will be given unusual emphasis this season. In certain parts of the fabric trade bathing trunks made of silk and acetate mixtures are favored, with the rest of suit made of acetate.

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Furness Organizes New Rayon Company

With the discharge of William H. Furness, as co-receiver in equity of the Furness Corp., rayon manufacturers, of Gloucester, N. J., it became known on Sept. 29 that Mr. Furness with a group of associates had formed the American Rayon Co., Inc. This firm will operate a new rayon plant at Riverton, N. J.

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DuPont Shows Velvets

Pile fabrics were accented at the fashion show staged by the DuPont Rayon Co. as a feature of the Women's Exposition of Arts and Industries, held at Hotel Astor, New York, during the last week of September. A wide range of synthetic yarn velvets was displayed, all of which had been processed to give them a water-repellant surface. Black and stained glass were the dominant tones. Other fabrics modeled were novelty crepes, both plain and print, ribbed weaves and outerwear fabrics. Deep autumn shades of brown variation were favored. The show, which attracted large audiences daily was presented by Miss Elizabeth G. Linehan.

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Rayon's Retail Status Improves

The new trend toward stronger retail prices for rayon underwear is being watched with keen interest by the merchandising departments of the rayon producing companies. Reports from middle-western and southern stores tell of price advances of from 15 to 20% on women's and children's knit rayon underwear. In view of the price weakness that has prevailed so long in this division—a weakness that cut seriously into the movement of yarn to the underwear industry—the rayon industry is hopeful that the mark-up will help toward healthier merchandising of rayon underwear both by mills and by stores. This hope was further strengthened by reports from stores at the end of Septemper that the number of complaints from consumers regarding rayon merchandise quality had dropped substantially during the third quarter.

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Rayon Mill News

Westbrook (Me.) Weaving Mills, Inc., has leased the Haskell Silk Mills and begun production on rayon fabrics. New machinery is being installed and old repaired. It was previously reported as a woolen mill.

Celanese Corp. of America has awarded contracts for construction of solvent recovery extension building at its Cumberland, Md., plant. The new unit will be 50x117 ft., 32 ft. in height, with a lean-to building, 25x117 ft., both of hollow tile and steel construction. An extension is also being built to the bobbin stores.

E. M. Holt Plaid Mills, Burlington, N. C., recently ordered through the Carolina Specialty Co., Charlotte, several additional Sipp-Eastwood high speed over-end redraw frames.

American Enka Corp., Enka, N. C., will erect addition of 75,000 sq.ft. floor space, enlarging power-house and adding an 800 hp. boiler. Total cost is estimated at $1,000,000. Job is to be completed by March, 1934.

National Weaving Co., Lowell, N. C., is erecting an office building at a cost of $7,000.

Mid-State Cloth Mills, Newton, N. C., operating at the former local Warlick Mills, acquired a number of months ago, for manufacture of rayon specialties, has begun construction of a new one-story plant unit. It is understood the mill will install 100 additional looms. It has already installed a Chas. B. Johnson five-cylinder rayon sizing machine, arranged for sizing rayon on the cotton system, purchased through Carolina Specialty Co., Charlotte.

Tennessee Eastman Corp., Kingsport, Tenn., has recently placed an order with Hungerford & Terry, Inc., Clayton, N. J., for doubling capacity of its Hungerford air-water-wash filtration plant.

Welwood Rayon Mills, Inc., Murfreesboro, Tenn., has been granted a charter. The company is capitalized at $25,000, with Frank Davenport, Jacob Leutert and Adolph Finkensieper, incorporators.

Blue Ridge Rayon Mills, Altavista, Va., have recently purchased through Carolina Specialty Co., Charlotte, N. C., a Hermas shearing and rolling and sewing machine.

Associated Textiles of Canada, Ltd., is planning erection of a 250-loom plant to weave rayon fabrics. The plant will be located in the Province of Quebec but exact town had not been announced.

Dominion Textile Co., Ltd., with head office in Montreal, Que., is now installing rayon warping and slashing equipment in its Verdun branch. The new equipment will be used in the supplying of warps to the looms already equipped to produce all rayon fabrics.

Valleyfield Silk Mills, Ltd., have begun the manufacture of rayon fabrics. Plant was recently purchased by Grout's Ltd., St. Catharines, Ont. Production will be under the guidance of Emil Straub.

Canadian Celanese Co., Ltd., Drummondville, Ont., has plans under consideration for extensions and improvements, with installation of additional equipment to increase present capacity about 25%. Work is reported to cost over $90,000, with machinery including looms. Mill is now on a 100% production schedule.

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TEXTILE WORLD'S

Knit Goods Digest

DURING the last month, the underwear code has been added to the select group of finally-approved documents.

This particular code represents a tremendous amount of work in the preparation of the preliminary draft, and an even greater amount of effort during subsequent revisions. It tackles in a courageous way many of the serious problems which have been impeding progress in this division of textile manufacture. Its faithful observance by all concerned should restore a stable basis for prosperity.

Congratulations are due the officers and other executives of the Underwear Institute.—*Editor.*

Footer Issue Aired at NRA Hearing

The opposition of numerous hosiery manufacturers to Article 4 of Section 7 of the hosiery code which compels mills operating footers on double-shift basis to reduce working hours to two 35-hour shifts and pay footers on a 40-hour basis, came formally before the NRA at a hearing held in Washington Sept. 27. Following extensive testimony pro and con by opponents of the clause, representatives of the National Association of Hosiery Manufacturers and representatives of the American Federation of Full-Fashioned Hosiery Workers, Deputy Administrator Rogers, who presided, said he would reserve decision.

Mr. Rogers asked that further data regarding the anticipated effect of the clause be submitted, adding that he would make no recommendation on the matter until this data were in hand.

Stanton D. Sanson, president, Ajax Hosiery Mills, Phoenixville, Pa., led the opposition. He asked that the clause be eliminated from the code because it would raise production costs to a prohibitive point. Mr. Sanson submitted a certified statement by accountants showing that, in his mill, the operations under the clause increased production costs by $58,515.05 annually. Mr. Sanson emphasized mainly the claim that the clause gave competing manufacturers an unfair advantage, and other witnesses testified to the same effect.

Charges that the hosiery association failed to properly represent the industry in including this clause in the code, were answered by Earl Constantine, managing director of that organization, who asserted that no arbitrary action had been taken, the aim being to achieve the greatest good for the greatest number of manufacturers. Regulation of output to prevent overproduction was the chief issue, he pointed out. About 75 manufacturers attended the hearing.

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Hosiery Mills Plan Labor Rule Protest

Thirty-six hosiery mills in the Reading, Pa. district must make written agreements with the American Federation of Hosiery Workers, governing future relations with employees, under a decision of the National Labor Board which was made public Sept. 27 by Senator Wagner, as chairman. The written agreement question was the basis of a controversy which has waged since the termination of the Reading hosiery strike last summer. Subsequent to Senator Wagner's announcement, Hugo Hemmerich, of Berkshire Knitting Mills, spokesman for the employers, announced that the manufacturers would file a brief in protest.

The decision of the Labor Board reviewed developments since the agreement contracted Aug. 10, between employers and employees under the Board's auspices, and pointed out that the present issue hinged on interpretation of paragraph 4 of that agreement. This paragraph stipulated that employees shall elect representatives to deal with employers in working out relationship agreements, and the hosiery manufacturers contended that this did not imply a written agreement. The Board concluded that by the terms of the Aug. 10 agreement, "it is incumbent on both sides to work out written agreements which shall deal with and define the relationships of employer and employee for a stated period of time."

The opinion added that a threatened new strike of workers in the Reading district because of delays in clearing up the issue, had been averted by the intervention of the Labor Board. It was also emphasized that the decision was based on a "particular set of cases," and should not be construed as a general interpretation of the Recovery Act.

Meanwhile prospects regarding early enactment of a new full-fashioned hosiery agreement to succeed that which expired Aug. 31, appeared dubious. The Full-Fashioned Hosiery Manufacturers of America on Sept. 29 submitted to the National Labor Board a list of twelve points to be arbitrated and established as basis for a new agreement with the American Federation of Hosiery Workers.

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Wage Raise Ends Outerwear Strike

A strike of several weeks' duration which affected most of the knitted outerwear mills in the New York district, was settled Sept. 28, according to announcements made by both sides. The settlement, which provided for wage increases of from 10 to 20% for a 37½ hour week, was reached at a meeting held in the New York offices of the International Ladies' Garment Workers' Union. The meeting was attended by representatives of the International, the United Textile Workers of America, another labor body involved, and by Morris Rubinger, Dan Starr and Harold R. Lhowe, for the employers. Mr. Rubinger is president of the Metropolitan Knitted Textile Association, the employers' organization. David Dubinsky, president of the International, said that the employers' representatives had also agreed to press for adoption of a 35-hour week in the knitted outerwear code.

A jurisdictional dispute which had arisen between the two labor unions was settled with the announcement by the employers that they would recognize whichever union is granted jurisdiction by the American Federation of Labor.

Another outerwear mill strike in the Philadelphia district was settled a few days previous.

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Hosiery Prices Advance Steadily

Hosiery movement throughout September was steady but moderate, the chief feature being the continued upward trend of prices. Numerous mills reinstated their price lists and reported a healthy market reaction. Berkshire Knitting Mills reopened prices on fine gage hosiery on Sept. 7; this firm priced its 45-gage high-twist full-fashioned stocking at $8.50 against the last quotation of $5.75. Falling in with the general upward trend, the Gotham Silk Hosiery Co. on Sept. 19 advanced prices on all numbers, the increase being from 50c. to 85c. The price of the popular 42-gage numbers rose from $6.50 to $7 per dozen.

A fairly good call for silk seamless stockings was reported at the end of

September, especially the 260-needle numbers, but buying here as elsewhere was restricted to nearby delivery. Knitters who specialize in woolen hosiery consider their season practically over, though sporadic orders are still being placed.

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NRA Helps Outerwear

Employment in the knitted outerwear industry has risen from 54,524 workers whose wages totalled $1,055,892.91, during the week ended May 27, to 72,973 employees whose wages totalled $1,237,154 on Aug. 12, according to figures made public by the National Knitted Outerwear Association. The figures were based on reports from 649 mills of all classes and several hundred contractors. The Aug. 12 figure represents the results of code operation under the 40-hour, $14 minimum wage, arrangement. The increase in employees was 33.6% and in payroll 17.1%.

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Underwear Sales Show Improvement

Caution was the chief characteristic of underwear buyers during September, but despite this hold-off attitude, the large mills reported active bookings. The market has not yet fully adjusted itself to the drastic price advances of the last five weeks, and buyers frequently protest that they cannot get sufficient mark-up to warrant paying the higher prices. Sales of winterweights picked up at the opening of October, and manufacturers hoped for continued activity at that end.

Current lightweight demand centered largely on men's one-piece and women's two-piece suits. Brassiers were particularly favored. Balbriggan pajamas proved a best-seller during September and are expected to move steadily through the current month. Several leading mills said their underwear sales for September were considerably ahead of the same month last year.

•

Strike Delays Outerwear Shipments

Considerable difficulty in making deliveries developed in the outerwear industry toward the end of September, as an aftermath to the curtailment of production due to labor troubles. Output both in New York and Philadelphia was reduced, with the result that, though demand was only moderate for this time of the year, buyers frequently were obliged to wait for shipments. Sweater demand was good, the chief interest centering on women's garments. The new twin-set, including a coat and slip-on sweater was an active line. The shortage has had the normal effect of tightening prices, and it is expected that another outcome will be delayed plans for the spring openings.

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Knitting Mill News

D. & W. Hosiery Mill, Inc., Meridian, Miss., with increased capital, is now operating under a new charter, under the name of the **Meywebb Hosiery Mills, Inc.** The officers of the corporation are the same as of the old firm.

Balacaier Knitting Mills, Jersey City, N. J., have arranged for a lease of space in industrial building at New York Ave. and Hutton St., totaling about 7,000 sq.ft., and will ocupy for new local mill.

J. B. Mfg. Co., Union City, N. J., recently organzied, has leased space in building at 546 Thirty-ninth St., Union City, totaling about 6,000 sq.ft. floor space, for a new knitting mill.

Republic Knitting Mills, Weehawken, N. J., recently organized, have leased space in industrial building at Hackensack Plank Road and Gregory Ave., totaling about 8,600 sq.ft., and will occupy for a new knitting mill.

Artcraft Knitwear Co., Inc., Brooklyn, N. Y., has been organized by Jacob Baum, 312 Linden Blvd., and Max Butler, 2173 Pacific St., both Brooklyn, with capital of $20,000, to operate a local knitting mill.

Roff Knitting Mills, Cohoes, N. Y., were damaged by a fire breaking out in the picking room which caused a loss estimated at $1,000.

Ballston-Stillwater Knitting Co., Stillwater, N. Y., has broken ground for a one story addition, 20x280 ft.

McLaurin Hosiery Mills, Inc., Asheboro, N. C., has been organized by McLaurin Cranford, C. C. Cranford and D. B. McCrary, to operate the plant formerly the Keystone Hosiery Mills. The property was sold at receiver's sale on Aug. 24, and confirmed Sept. 5. Plant formerly operated 80 Banner split-foot machines.

Scott-Baker Knitting Co., Inc., Graham, N. C., has been formed by merger of Scott Hosiery Mills and Scott Knitting Co., with capital of $100,000. The new company becomes the full-fashioned hosiery division of the Baker-Cammack Textile Corp., which operates seamless hosiery knitting and finishing plants. Officers are: Col. Don E. Scott, president; J. E. Baker, vice-president; R. E. Cammack, secretary and treasurer.

Paramount Hosiery Mills Co., Hickory, N. C., has added 50 or more additional loopers and knitters.

Royal Hosiery Mills, High Point, N. C., plant and equipment on seamless hosiery, was purchased at foreclosure sale Sept. 25, by S. A. Davis, of High Point, at $10,500, subject to confirmation.

Silver Knit Hosiery Mills, High Point, N. C., has filed a certificate of incorporation subscribed to by Milton Silver, J. Silver and L. Silver, of High Point.

Baker-Mebane Hosiery Mill, Mebane, N. C., is installing 40 new knitting machines.

Levan-Gehrke, Inc., Fleetwood, Pa., men's half hose, idle almost three years, has resumed operations with two eight-hour shifts. Paul Boyer, former superintendent, is again in charge.

Berger Hosiery Mills, Philadelphia, have been bought by John Bromley of the Quaker Lace Co. for the purpose of supplementing the product of the Quaker Hosiery Co. Mr. Bromley will install additional full-fashioned machines.

Rose Knitting Mills, Philadelphia, has leased premises at 540 North 5th St., where it will operate a knit goods plant.

Roseglenn Knitting Mills, Sumter, S. C., has been incorporated for $50,000 to acquire and operate the former Roseknit Hosiery Co. Officers of the new company are: Thomas H. Webb, Concord, N. C., president; C. W. Byrd, of Concord, vice-president and treasurer; and Martin K. Rosefield, secretary.

Se-Ling Hosiery Mills, Nashville, Tenn., a reorganization of the Walter Fred Hosiery Mills, has been announced. Management remains in the hands of J. D. Goodpasture, with Walter Fred, as sales manager.

Lynchburg (Va.) Hosiery Mill will enlarge its plant on Fourth Avenue, according to Clarence H. Burton, president.

Zwicker Knitting Mills, Appleton, Wis., have let contract for a $30,000 addition, 40x96 ft., two stories and basement. It will be used for expansion both of manufacturing facilities and storage space.

Fashion Hosiery Mills, Inc., Milwaukee, Wis., organized by George F. Smith and Leonard J. Vogel, will operate a local mill.

Hudson Underwear, Inc., capital $40,000, has been established at Woodstock, Ont., Canada. Silk and rayon underwear will be made. E. J. Hudson is president and L. B. Hersee, vice-president.

J. Howard Stannard has purchased the **Gatineau Knitting Mills,** Hull, Que., Canada, and will continue to manufacture heavy hosiery and mitts. Mr. Stannard comes from the paper industry.

TEXTILE WORLD'S

Processing Digest

DESPITE the excellence of the papers presented at the annual convention of the American Association of Textile Chemists and Colorists, we were impressed—or rather depressed—by one serious shortcoming. Practically all the papers were presented by representatives of firms producing materials for use in textile finishing, and dealt largely with improvement in those products; papers by men actively engaged in the industry themselves, and dealing with process development, were conspicuous by their absence.

This must mean one of two things: Either there has been no such progress to report; or finishing companies do not encourage their chemists to report on it, in public. We do not believe the first of these alternative explanations is correct. While there undoubtedly has been more research advance among firms selling to the industry than among finishers themselves, we are convinced that, in all the processing plants in this country, there must be sufficient development each year to warrant at least a few papers at the annual convention. . . . If reluctance to publicize such development is the real answer, we suggest that the executives study the fate of other industries which have tried to erect around their plants a wall through which neither outgoing *nor incoming* thought could penetrate.—*Editor.*

Hearing on Cotton Code Modification

The hearing held in Washington Oct. 9 on the modification of the cotton textile code to include the finishing, thread and mercerizing divisions of the industry, partook of the spectacular in view of the presence of large delegations of labor groups, with banners and other trappings. The importance attached to the hearing by the NRA was indicated by the presence of Gen. Hugh S. Johnson.

The main issue developed during the proceedings was the question of the inclusion of rayon finishing in the cotton code. Representatives of labor, manufacturers, retailers, and the clergy of Paterson (N. J.) district protested against such inclusion on the basis that it would debase the wage level in the silk and rayon finishing plants of that section and threaten the very existence of the industry itself.

At the start of the hearing, Deputy Administrator A. D. Whiteside, who presided, announced that the silk code had been signed by the President on the preceding Saturday, and that he (Mr. Whiteside) had recommended its approval and accepted full responsibility for the wage scale involved.

The proposed changes in the cotton code were presented by George A. Sloan, chairman of the Cotton Textile Industry Committee. More detailed interpretations for the specific industries affected were offered by John B. Clark, president of the Thread Institute; J. S. Verlenden, president of the Mercerizers Association of America; Albert L. Scott, president of the National Association of Finishers of Textile Fabrics; and Henry G. Lauten, president of the Textile Fabrics Association.

The labor viewpoint was presented by Thomas F. McMahon, Francis J. Gorman, and others of the United Textile Workers, the A. F. of L. union; and by Miss Ann Burlak and other representatives of the National Textile Workers Union. All protested against the placing of the finishing industry under the cotton code.

Endorsement of this protest was offered by John J. Fitzgerald, secretary of the Paterson Chamber of Commerce; by Sol Moss, chairman of the Converters Division of the Silk Association of America; and by officials of the Institute of Dyers and Printers, representing silk and rayon dyeing and printing industry.

On the other hand, Edwin E. Berliner, of the Textile Fabrics Association, urged that rayon processing be included in the cotton code.

The issue drawn between the opposing groups was rendered more difficult and delicate by the strike situation existing in the silk field, and presented to the NRA probably the knottiest problem involved thus far in the development of codes for the textile industry. Mr. Whiteside apparently recognized its gravity since he made little attempt to check the various speakers and gave them far more latitude to indulge in argument and oration than is permitted under a strict interpretation of the laws of procedure governing the code hearings. Certainly, no member of any group involved can claim that he or she was deprived of the opportunity for full expression.

In closing the meeting, Mr. Whiteside pointed out that industry must settle its internal problems but that the administration must consider conflicts between industries. He expressed belief that existing confusion is based principally on a misunderstanding of the minimum wage. The minimum is not the maximum, he explained. In view of all that had been done for labor, he could not understand the reason for strikes. He thanked the conflicting interests at the hearing for their orderly presentations.

[Silk dyers' strike is covered in detail on page 110.]

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Instantly Dispersable Vat Printing Powders

Introduction of a complete line of instantly dispersable vat printing powders is announced by National Aniline & Chemical Co., Inc. Known as Carbanthrene Printing Powders, these dyestuffs can be stirred directly into the printing gum, requiring no pasting with water or other solvents. Because of their finely divided state and the action which follows while the powders disperse in the printing gum, it is stated that an extremely homogeneous and non-specking paste is obtained. It is said also as the powders remain unchanged indefinitely, difficulties due to drying out, settling, caking on container sides, or freezing during the winter months are eliminated. Further advantages cited for these dyestuffs are accurate weighings which assure a closer check on actual color-shop consumption and a more positive adherence to established standards; superior penetration giving fine lines and scroll work possessing the same depth and density of color as to broad stripes and open work; and brighter colors, together with sharper and clearer prints.

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Increase in Employment Cited at Finishers' Meeting

The number of workers employed in finishing plants has increased from 42,000 before the temporary code became effective, to 65,000 at the present time, it was reported at a meeting of the National Association of Finishers of Textile Fabrics held Sept. 27, at Spartanburg, N. C. The Spartanburg meeting was devoted to a discussion of the general conditions in the finishing industries. It was called primarily for the convenience of southern members.

Patterson Heads Dyers' Statistical Bureau

Alexander Patterson, formerly secretary of the Silk Dyers & Printers Association, has been placed in charge of the statistical bureau of the Institute of Dyers & Printers. This bureau was formed recently to collect and distribute data on production and prices. Mr. Patterson will work under the direction of Robert R. Salembier, executive secretary of the Institute.

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Wages Higher in Dyeing Industry

Wages in the dyeing and finishing industry increased from an average of 37.1c. per hour to 49.7c. per hour in the month between July 15 and August 15, and hours of labor decreased from an average of 49.5 to 36.3 hours per week, according to figures released late last month by the U. S. Department of Labor. The changes are attributed largely to the influence of the NRA.

•

Dyestuffs for Mixed Fabrics

A new line of dyestuffs for producing uniform shades on mixed fabrics which in addition to wool, silk, cotton, or rayon contain also cellulose acetate has been brought out recently by General Dyestuff Corp. These dyestuffs, known as the Plurafil colors, give nearly identical shades on the various fibers mentioned above. When final shading is necessary, direct, acid, or acetate dyes may be employed as required. The present range of Plurafil colors includes a yellow, orange, red, green, brown, navy, and black. The method of application is as follows:

The dyestuffs are made into a smooth paste with warm water and are dissolved by pouring hot water over them. The diluted solution is added through a fine sieve or strainer to the dyebath prepared with soft water, about 30% of glauber salt is added, dyeing is carried out at 175° F. for about 1 hour, and finally the goods are rinsed well.

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Granted Patent on Crease-Resisting Process

A patent covering the treatment of cotton and rayon fabrics to render them less liable to creasing and wrinkling has been granted to Waldemar Zanker, and assigned to Heberlein Patent Corp., of New York. The process consists of impregnating the fabric with a soluble compound of a metal selected from the group zinc, aluminum, virconium, tin, and titanium; also impregnating the fabric with a substance capable of forming a water-insoluble resin; and heating the fabric thus treated to form an insoluble resin and insoluble metallic compound on the fabric, the resin and metallic compound being present in insufficient quantities to cause appreciable stiffness. It is reported that work on this process has been going on for a number of years, and that the corporation will be ready to issue licenses shortly.

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A.A.T.C.C. Notes

The South-Central section, American Association of Textile Chemists & Colorists held its fall meeting on Sept. 30, at the Andrew Jackson Hotel, Knoxville, Tenn. About 100 members from Tennessee, Alabama, and Georgia attended the business sessions and banquet. W. S. McNab, of Quaker City Chemical Co., and Nestor Groteluesschen, of Magnet Knitting Mills, were in charge of arrangements for the meeting.

•

New Detergents and Wetting Agents

Two new detergents and wetting agents, known as Arctic Syntex A and Arctic Syntex T have been announced recently by Colgate-Palmolive-Peet Co., Chicago. Properties of Syntex A cited by the manufacturer are as follows: May be used in slightly acid or alkali solutions; is an excellent wetting out and penetrating agent; is unaffected by hard water or metallic salts; prevents separation of lime soaps and acts to disperse lime-soap particles which have already been formed; shows good scouring action; is excellent emulsifier for oils, including mineral oils; is neutral in reaction and is effective in liquors containing no free alkali; does not possess felting properties; is stable under ordinary storage conditions; dissolves readily in water, forming a clear yellowish solution; has leveling action in dyeing; and is available in both powder and paste form. Syntex T is said to possess the same properties as Syntex A, and in addition, has a greater stability to acid, a more powerful cleansing action, and a stronger dissolving or dispersing action on lime soaps.

Applications for which Syntex A are recommended include the scouring of greasy wool, skin wools, slubbing, woolen and worsted yarns and piece goods; as a dyeing and fulling assistant; in the aftertreatment of dyed fabrics; in the scouring of acetates; and as a softener in finishing and sizing mixtures.

Among the applications for Syntex T are in the kier boiling of cotton; in bleaching; as a dyeing auxiliary for cotton, rayon, wool, etc.; for soaping prints; for use in sizing, desizing, and finishing; and in acid fulling.

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Processing Plant News

O. K. Piece Dye Works, Paterson, N. J., has taken out a permit to construct new one-story unit, to be used primarily for storage and distributing service; cost about $20,000. General contract was let to Benjamin Greenblat, Passaic, N. J.

Acme Backing Corp., Brooklyn, N. Y., has filed plans for a new two-story addition to mill, estimated to cost $25,000, with equipment. General contract has been let to the J. William Co., New York, N. Y.

Manhattan Yarn Dyeing & Bleaching Co., Brooklyn, N. Y., has plans for extensions and improvements in dye house, with installation of additional equipment, estimated to cost $28,000. D. M. Kaufman is architect.

Southern Dyers, Inc., Burlington, N. C., has been organized and will engage in textile dyeing. The capital stock is $100,000. The incorporators are W. S. Coulter, Eva Burke Clapp and Ruth Perry Handley of Burlington.

Southern Bleachery and **Piedmont Print Works** paid to stockholders Oct. 1 $1.75 per share, according to announcement of the directors. Since the merging of the bleachery with the print works three years ago, this is the first dividend that has been voted paid on the preferred stock of the company. The plants are located at Taylors, S. C.

Sayles Bleacheries, Saylesville, R. I., have work under way on a new top story addition to main mill unit, reported to cost over $25,000, with equipment. General contract was awarded to Temple & Crane, Inc., Boston.

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QUOTATIONS

At close of business, Oct. 2, 1933

Prices cover average qualities unless otherwise stated.

Cotton Goods

	*Oct. 2	*Sept. 1	Oct. 1 1932
PRINT CLOTHS			
27 -in., 64x60, 7.60	4¼	4¼	3
38½-in., 64x60, 5.35	6⅞	6⅞	4
39 -in., 68x72, 4.75	7⅛	7⅛	4⅛
39 -in., 72x76, 4.25	8½	8½	4⅝
39 -in., 80x80, 4.00	9¼	8¼	5⅛
BROWN-SHEETINGS			
36-in., 56x60, 4.00	7⅞	7¼	4½
36-in., 48x48, 5.00	6½	6½	3½
37-in., 48x48, 4.00	7⅛	7¼	3¼
MISCELLANEOUS			
Drills, 37-in., 3 yd	10½	11½	5⅜
Denims, 2.20	17	17	10½
Tickings, 8 oz	20	20	11
Standard prints	7¼	7¼	5⅜

*Tax included.

Cotton Waste

Peeler comber	11.00c
Peeler strip	10.00c
White spooler (single)	5.50c

Cotton Prices

Spot Cotton at	Oct. 2	Sept. 1	For Month High	For Month Low	1932 Oct. 1
New York	9.90	9.45	10.45	8.85	7.05
New Orleans	9.61	9.20	10.25	8.51	7.00
Liverpool	5.53	5.60	5.67	5.32	5.87

FLUCTUATIONS OF FUTURES

	Closed Oct. 2	For Month High	For Month Low	Closed Sept. 1	Net Change
Oct.	9.65	10.28	8.68	9.35	+0.30
Nov.	9.74	10.38	8.78	9.44	+0.30
Dec.	9.84	10.52	8.89	9.54	+0.30
Jan.	9.92	10.60	8.96	9.64	+0.28
Feb.	10.01	10.70	9.04	9.72	+0.29
Mar.	10.10	10.80	9.12	9.81	+0.29
April	10.18	10.89	9.20	9.89	+0.29
May	10.27	10.98	9.28	9.98	+0.29
June	10.34	11.05	9.35	10.06	+0.28
July	10.41	11.18	9.43	10.15	+0.26

AVERAGE PRICE JUNE-JULY SHIPMENT HARD WESTERN COTTON

	F.o.b. New England Middling	St. Middling
1⅛-in.	12.34	13.59
1 1/16-in.	13.49	15.09
1¼-in.	17.84	19.34

Based on Dec. 9.84.

FOREIGN COTTONS

Alexandria Exchange, Oct. 2		Change
November, Sak	13.18	—0.52
October Uppers	10.54	—0.68
Aug.-Sept. Shipment c.i.f. Boston (Tariff not included)		
Medium Sak	24.90	+1.70
Medium Uppers	20.60	—0.90
(By Anderson, Clayton & Co.)		
India Rough, Calcutta Camilla	9.50	
Peruvian Tangius Strict Middling	20.75	
China Tientsin No. 1	10.50	

Quotations on cotton cloth and cotton yarn as given on this page for Sept. 1 and Oct. 1 include the cotton processing tax. Where figures for earlier dates are given for comparison, such figures do not include this tax.

Cotton Yarn (Nominal)

(Tax Added)

CARDED (Average Quality)

Double Carded 2c—4c., higher according to quality.

SINGLE SKEINS OR TUBES (Warp Twist)

4s to 8s	$0.28½	20s	$0.32
10s	— .29	24s	— .35
12s	— .29½	26s	— .36
16s	— .31	30s	— .38½

TWO-PLY SKEINS AND TUBES

8s-2	$0.29	20s-2	$0.32½
10s-2	— .30	24s-2	— .35
14s-2	— .31	30s-2	— .38½
16s-2	— .32	40s-2	— .47½

SINGLE WARPS

10s	$0.29½	20s	$0.32½
14s	— .31	24s	— .35
16s	— .32	30s	— .38½

TWO PLY WARPS

8s-2	$0.29½	20s-2	$0.33½
10s-2	— .31	24s-2	— .36
14s-2	— .32	30s-2	— .40
16s-2	— .32½	40s-2 ordin.	— .49

HOSIERY CONES (Frame Spun)

8s	$0.29	18s	$0.32
10s	— .29½	20s	— .32½
12s	— .30½	22s	— .33½
14s	— .31	24s	— .35½
16s	— .31½	26s	— .36½

COMBED PEELER (Average Quality) TWO-PLY — (Knitting Twist) Cones

20s-2	$0.42	50s-2	$0.58
30s-2	— .48	60s-2	— .67
40s-2	— .54	80s-2	— .87

WARPS, SKEINS AND CONES TWO-PLY — (Warp Twist)

20s-2	$0.43	50s-2	$0.60
30s-2	— .49	60s-2	— .65
36s-2	— .52	70s-2	— .78
40s-2	— .55	80s-2	— .90

SINGLES

14s	$0.38	38s	$0.50
20s	— .41	40s	— .52
28s	— .44	50s	— .57
30s	— .45	60s	— .65

MERCERIZED CONES (Combed, Ungassed)

30s-2	$0.63	60s-2	.80
40s-2	— .67	80s-2	1.10

Raw Silk

Prices Nominal

	13/15 White	20/22 White	20/22 Yellow
Special Grand, 85%	$2.02½	$1.76	$1.76
Grand XX, 83%	1.96½	1.75	1.75
Special Crack, 81%	1.91	1.71	1.71
Crack XX, 78%	1.87½	1.68	1.68
Extra, Extra, 73%	1.85	1.65	1.65
Best Extra, 68%	1.80	....	....

RAW SILK EXCHANGE

	Oct. 2	Sept. 1	For Month High	For Month Low	Net Change
October	1.71	1.77	1.89	1.74	—0.06
November	1.69	1.77	1.88	1.71	—0.08
December	1.69	1.79	1.88	1.71	—0.10
January	1.69	1.80	1.88	1.71	—0.11
February	1.69	1.78	1.88	1.71	—0.09
March	1.69	1.78	1.88	1.71	—0.09
April	1.69	....	....	....	....

Silk Yarns

Hosiery tram 5thd. Japan, 85%	$2.67½
Hosiery tram, crack XX, 78%	2.50
60/2 spun silk	2.95

RAYON WASTE

Thread (for garnetting)	$0.15

Wool

OHIO, PENNSYLVANIA, ETC. (GREASE)

Fine delne.	$0.33 –$0.34	¾ blood	$0.40 –$0.41
Finecl'thg.	.26 – .27	¼ blood	.40 – .41
½ blood	.34 – .35		

TEXAS AND CALIFORNIA (CLEAN)

Texas, 12 months	$0.79 –$0.80
California, Northern	.73 – .75

MONTANA, IDAHO, WYOMING (CLEAN)

Staple fine	$0.82 –$0.83
Staple ½ bld	.80 – .82
Fine and fine medium (original bag)	.79 – .81
¾ blood	.76 – .78
¼ blood	.70 – .72

EASTERN SCOURED PULLINGS

A.A.	$0.95 –$0.97	B-Super	$0.76 –$0.78
A-Super	.83 – .85	C-Super	.69 – .71

CARPET WOOL (Nominal)

Aleppo (clean)	$0.19 –$0.22
Sining	.14 – .17
China filling (clean)	.15 – .18

Tops and Noils

TOPS—BOSTON

Fine (64-66s)	$1.16 –$1.17
Half-blood (60-62s)	1.12 – 1.13
Aver. ¾ blood (56s)	1.06 – 1.07
¼ blood (50s)	.96 – .98

NEW YORK TOP FUTURES

	Closed Oct. 2	For Month High	For Month Low	Closed Sept. 1
October	106.00	107.00	96.40	96.40
November	106.40	107.00	96.60	96.60
January	107.20	107.80	97.30	97.30
March	108.00	108.60	98.00	98.00
June	108.00	109.80	99.00	99.00

TOPS — BRADFORD ENG. (Oct. 2)

Fine (64s)	33½d
½ bld. (60s)	32 d
¾ bld. (56s)	24½d
½ bld. (50s)	17½d

NOILS — BOSTON

Fine	$0.56 –$0.58	¾ bld.	$0.51 –$0.53
Half bld.	.53 – .55	¼ bld.	.49 – .50

Worsted Yarns

ENGLISH SYSTEM WEAVING

2-20s 44s.	$1.25 –$1.27½	2-36s 58s.	$1.50 –$1.55
2-30s 46s.	1.35 – 1.40	2-40s 60s.	1.60 – 1.67½
2-30s mixes	1.80 – 1.85	2-50s 64s.	1.80 – 1.85

ENGLISH SYSTEM KNITTING

2-20s 44s.	$1.20 –$1.25	2-20s 60s.	$1.45 –$1.50
2-20s-50s.	1.27½– 1.30	2-20s 64s.	1.50 – 1.55

FRENCH SYSTEM

1-26s 64s.	$1.50 –$1.55	2-40s64s Zephyrs.	$1.77½ –$1.80
1-30s 64s. warp	1.60 – 1.62½	2-50s 66s.	1.90 – 1.95

Domestic Rayon

VISCOSE PROCESS

Denier	Filament	Price	Denier	Filament	Price
50	14	$1.25	150	24–40	$0.65
75	30	1.00	150	60	.70
100	40	.85	300	44	.55
125	36	.72			

NITRO-CELLULOSE PROCESS

Denier	First Qual.	Denier	First Qual.
75	$1.05 –$1.10	150	$0.70
100	.90 – .95	175	.70

ACETATE PROCESS

Denier	Price	Denier	Price
45	$1.40	100	$1.10
60	1.25	120–125	1.05
75	1.15	150	1.00

CUPRAMMONIUM PROCESS (TWISTED)

Denier	Filament	Price	Denier	Filament	Price
30	24	$1.60	100	75	$1.00
75	60	1.20	150	112	.90